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ROCKS and MINERALS

Vol. 4. No. 2. JUNE, 1929 Whole No. 12

Courtesy of Dr. H. C. Dake

Famous old mining camp of Silver City, Idaho, where some very rich silver and gold mines were located. Gold was first found in Jordan Creek Gulch which can be seen in center. War Eagle Mountain in middle background.

SPECIAL ARTICLES

QUARTZ AND CHALCEDONY. By P. Walther.
DIAMONDS IN THE UNITED STATES. By Eugene W. Blank.
LITTLE JOURNEYS TO OLD MINERAL SHOPS. By Albert C. Bates.
THE $5,000 DOLOMITE—LECTURE ON ITS QUALITIES AND CHARACTERISTICS. By Dr. Eles.
A REVIEW OF MINERAL COLLECTING DURING 1928.

THE MAGAZINE FOR COLLECTORS

THE BULLETIN BOARD

NOMINATIONS OF OFFICERS FOR 1930

Nominations of officers for the Rocks and Minerals Association for 1930 are now in order.

The election, of course, does not occur until the end of the year, but we make this early announcement in order that the members of the Association may place a nomination of those they would like to see conduct the Association's affairs next year.

Nominations should be sent in on or before July 20th so that they may appear in the September issue of the magazine.

An Appeal for Pictures

We have been printing upon our front cover pictures of well-known mining localities. That on the cover of this issue is of Silver City, Idaho, once a famous mining camp for silver production. In the days of greatest activity the population of the city was 5,000 and 600 Chinamen (as they tell it).

We should like to receive from members of the Association pictures of old and historic mining towns and camps to be used in making cuts for our covers. These pictures will be carefully treated and returned if desired.

We should also like to receive from our contributors any pictures or other illustrations that they may have available and especially sketch maps showing the location of the locality being reviewed, to illustrate their articles. We believe that articles so illustrated would appeal more to our readers and make a better impression than they would otherwise.

A Nature Training School

The Nature Training School of the Coordinating Council on Nature Activities will be held June 1st-29th at Gardner Lake, Conn. The purpose of this school is to provide opportunities for men and women to gain practical information and approved methods for nature service. The leaders of the various courses offered are men and women known to be qualified to give the best in their chosen field of activity. Classes will be offered in tree study and forestry, birds, insects, stars, plant ecology and physiography, Indian Trails and Gardens, music interpretation and photography, outdoor sketching and nature education. Last year over a hundred leaders were trained at the Nature Training School. These people were from 31 different states and 3 foreign countries. Registrations should be sent to the Coordinating Council on Nature Activities, The American Museum of Natural History, 77th Street and Central Park West, New York, N. Y. Registrations limited.

In An Early Issue

Death Valley and the Borates of California: by M. Vonsen of Petaluma, Calif. Who would suppose that Death Valley, one of the most desolate regions in America, could contain minerals? Not only are minerals found there but they are mined in enormous amounts to produce a very common household product—borax, in fact, Mr. Vonsen tells us that California is the world's chief producer of this important borate. An interesting article by a new author.

Huge Beryl Crystals at Albany, Maine: by E. K. Gedney and Harry Berman. We are very glad to have the pleasure in printing this article describing the occurrence of the largest crystals of beryl ever found in America. The largest crystal has a length of eighteen feet, a diameter of four feet, and an estimated weight of eighteen tons.

WANTED: Correspondents in all parts of the world who will be kind enough to send us notes and news items on minerals, etc., that they think may be interesting to the subscribers of "Rocks and Minerals." Such as are available we shall be very glad to print in the magazine.

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ROCKS AND MINERALS

The Magazine for Collectors

Published Quarterly

Peter Zodac
Editor and Publisher

The Official Journal of The Rocks and Minerals Association

Vol. 4, No. 2 JUNE, 1929 Whole No. 12

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ROCKS AND MINERALS **PEEKSKILL, N. Y., U. S. A.**

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To introduce ROCKS AND MINERALS to new subscribers, we have made a special arrangement with the publishers of the *Journal of the Outdoor Life* and *The Quarry Managers Journal* whereby either one of these two magazines may be had in combination with ROCKS AND MINERALS for the attractive price of its regular subscription alone. The magazines will be sent to the address of the subscriber or the subscriber may have one or both sent to friends.

ROCKS AND MINERALS (a quarterly) is the only magazine in the country that is devoted to the fascinating study of minerals and their collecting and written in such a way that even the beginner can read and understand it. A subscription makes one a member of the Rocks and Minerals Association.

The *Journal of the Outdoor Life* (a monthly) is the only national magazine written by and for tuberculosis patients. It contains stories, verses and scientific articles written by tuberculosis specialists; conducts a Question Box and has a Nature Study Department in connection with which prizes are offered each month. Offers diversion, help and inspiration not only to tuberculosis patients but to everyone interested in health.

Subscribers to ROCKS AND MINERALS will find the Nature Study Department most interesting and instructive reading. The department is conducted by Mrs. Ilsien Nathalie Gaylord, whose very instructive articles on The Beginner's Cabinet, ran through a series of numbers of ROCKS AND MINERALS.

The *Quarry Managers Journal* is the only magazine in the world which is devoted to quarry management, written by quarry managers, edited by a quarry manager, and controlled by an Institute of Quarrying. In its pages, the men who know—practical men and experts—discuss everything directly and indirectly relating to quarry management, and its readers are consequently kept informed of the latest developments. These are the reasons why it has subscribers in every continent. The *Quarry Managers Journal* comes out monthly and is published in Birmingham, Eng.

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DIAMONDS IN THE UNITED STATES

By Eugene W. Blank
State College, Pennsylvania

Arkansas, birthplace of the "Arkansas Traveler," state of rugged mountain grandeur, of innumerable hot springs, of diversified mineral resources, is justly famous also as the home of the American diamond.

But to digress: Diamonds have been found in many parts of our country. Virginia lays claim to the discovery of a single isolated diamond weighing close to twenty-three carats.[1] It was dug up by a laborer working on a street excavation in Manchester as long ago as 1855. It was cut to an approximate weight of 11 carats and though poor in color and rather badly flawed brought a high price.

Single, seemingly isolated, stones have been picked up at long intervals along the eastern slopes of the Appalachians in North and South Carolina, Georgia and Alabama.

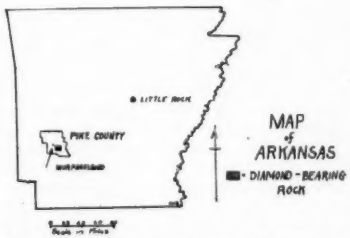
In North Carolina a little boy sent to a spring to fetch water found a bright, glittering pebble. The stone was subsequently proven to be a diamond and can now be seen in the Tiffany Morgan Collection of the American Museum of Natural History in New York. Several other small stones have been found in the more mountainous portions of the State.

A very few stones have been found in surface deposits in Kentucky and Tennessee, but without any indication of the original source from which they were derived.

Idaho and Montana report several stones, while Philadelphos, Arizona, boasts of a magnificent brown specimen weighing one carat.

Diamonds are occasionally found in the gold placer and platinum mines of California; most of them in the neighborhood of Fiddletown and Volcano in Amador County.

A comparatively large number of emigrant diamonds of considerable size have been found in the Great Lakes region. The term emigrant is used to designate



Map of the State of Arkansas showing Pike County and location of the Diamond-bearing Peridotite. Little Rock is the capital of Arkansas.

these diamonds because most of the stones have been found in close association with glacial drift deposited by the great ice sheet that covered the northern portion of the United States some 80,000 years ago. From a study of the glacial movements it is inferred that the original source of the gems is in Canada, most probably in the desolate territory lying south of Hudson Bay.

Several of these emigrant stones have been of considerable size. One weighing close to fifteen carats was turned up in Wisconsin during the rather prosaic operation of digging a well. It is safe to say the well was completed in record time. At present the diamond resides in the Tiffany Collection. Several Wisconsin farmers have been agreeably surprised by finding diamonds in the furrow left by their plow. Michigan, Illinois and Indiana have all contributed stones. It is interesting to note in passing that the first diamond to be found in America was found in Indiana in 1837. It was a pure white stone and weighed two carats cut. On an average, one stone a year has been discovered in this region since 1894. However, these finds were soon to to be totally eclipsed by the discovery of diamond-bearing rock in Arkansas.

On August 1, 1906, John M. Huddles-

ton picked up two stones near the mouth of Prairie Creek, two and one-half miles southeast of the little town of Murfreesboro, Pike County, Arkansas. Fortunately he was interested in them to the extent of submitting them to several experts, among them George F. Kunz, who identified the stones as true diamonds. The finding of these stones led to further exploration and it was soon definitely proven that this was the first discovery of diamonds in their matrix, an igneous rock known as peridotite.

A specimen of the matrix containing a diamond, found in 1907, was examined by George F. Kunz and H. S. Washington, who made the statement that: ". . . the diamond is actually in place in the rock and was not inserted in the specimen. Consequently it constitutes a definite proof that the peridotite is the source of the diamonds."[2] Much subsequent work has been done and it is generally believed that the peridotite rock of Arkansas is similar in character and mode of occurrence to that of South Africa.

Nearly all the diamonds discovered have been found within the exposures of the typical peridotite though a few have been picked up in streams where they had probably been carried by the processes of weathering and erosion.

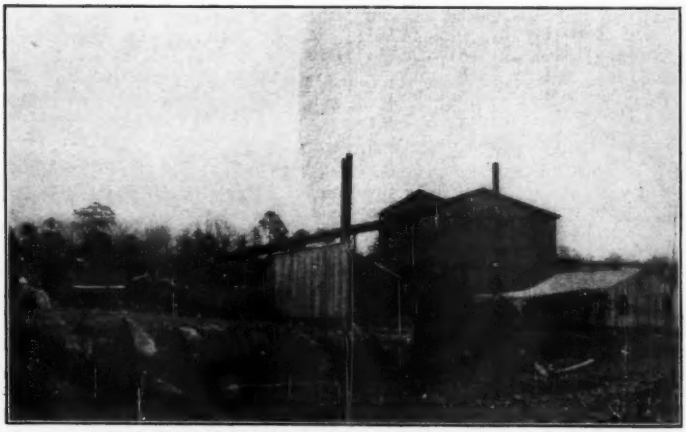
Most of the diamonds that have been discovered have been of small size. There have, however, been a few exceptional finds; several stones have been found weighing approximately 20 carats.

The greater number of the diamonds are white, yellow or brown in color. The larger stones are of an exceedingly high grade in color, brilliancy and freedom from flaws. Several yellow diamonds of a superb color and quality have been unearthed.

According to Austin Q. Miller of the Kimberlite Mining and Washing Company, which operates the Ozark and Mauney mines, the percentage yield of the various kinds of stones are as follows: White stones, 40; yellow, 22; brown, 37; true bort, 1.

Continuing, he says: "Because of the high luster in their rough state, a parcel of Pike County diamonds are unmatchable by a like parcel of African stones. This quality is largely due to their extreme hardness, and as a consequence the greater brilliancy of the finished gem is the result. In both hardness and size the mine-run stones are best comparable to the Brazilian diamonds."[3]

The characteristic diamond-bearing peridotite is exposed in four places, which aggregate about 80 acres, and all of which are close to Murfreesboro, Arkansas. Three of the exposures have yielded diamonds. Altogether five mines have been operated: the Arkansas, the



Courtesy of G. C. Branner, State Geologist, Arkansas.

Fig. 1. Plant of the Arkansas Diamond Corporation, near Murfreesboro, Arkansas.

Ozark, the Mauney, the American and the Kimberlite. The Arkansas mine has been the chief producer, having recovered about 3,000 diamonds up till the end of 1920. The mine was again operated in 1921 for a short length of time but production figures are unavailable. The Ozark mine ranks second in production having yielded 800 to 900 diamonds in 1913. It was again worked from 1914 to January, 1919, but as in the former case the production is likewise unknown. Most of the diamonds are being held by the mining companies but estimates of the total number produced range from 5,300 to approximately 10,000 stones.

The Arkansas Diamond Corporation, successor to the Arkansas Diamond Company, recovered from the Arkansas mine a total of 2,544.39 carats from April, 1923, to June, 1925. At a value of $5.00 per carat, the total production for this period of time is valued at approximately $12,721.[4]

Most of the mining has been done in shallow open cuts and the diamonds recovered by washing the diamond-bearing material with water. Much of the peridotite is already weathered and is soft enough to be washed for the recovery of the diamonds without being crushed or aged. The concentrates obtained by the washing are carefully searched for any large diamonds and then washed by water over a tray coated with thick grease. The greased tray is gently rocked during the process of washing and the diamonds stick to the grease, while the rest of the minerals are washed away. The grease with its diamond content is removed from time to time and the diamonds freed by boiling with strong lye.

Amethyst quartz of gem quality is occasionally found associated with the diamonds. Dense chalcedonic novaculite is also found and some has been cut for use as jewelry.

References

[1] Diamonds are sold by the carat. One carat is equal in weight to 0.207 gram. The term "carat" is derived from the carob bean formerly used as a small weight by the diamond merchants of India.

[2 3] Statements taken from the U. S. Geological Survey Bulletin No. 735-I, "Diamond-Bearing Peridotite in Pike County, Arkansas," by H. D. Miser and Clarence Ross. Information is included in this report relative to diamond production up to 1921.

[4] From "Outlines of Arkansas' Mineral Resources," by George C. Branner, State Geologist of Arkansas. Published jointly

Courtesy of G. C. Branner, State Geologist, Arkansas.

Fig. 2. Open cut of the Arkansas Diamond Corporation near Murfreesboro, Arkansas.

by the Bureau of Mines, Manufactures and Agriculture and State Geological Survey, Little Rock, Arkansas, 1927. Contains a bibliography of Arkansas diamonds for those who wish to pursue the subject further.

[5] For those interested in diamonds generally a very good book on the subject is: "The Diamond," by W. R. Cattelle. Published by John Lane Co., N. Y., 1911.

LITTLE JOURNEYS TO OLD MINERAL SHOPS

By Albert C. Bates
Newark, N. J.

This is the beginning of an interesting series of articles on dealers and collectors that flourished many years ago.—**The Editor.**

Mention has been made of the long list of dealers in minerals that flourished thirty years ago as against the very few now in business, so a Little Journey to some of them, together with a list of all of them, should be of interest to present day collectors as well as to recall to "Old Timers" some pleasant memories.

Impetus was given to the collecting of minerals by the exhibits made at the Centennial Exposition in 1876. For several years after that the noted collections of the country expanded wonderfully; many of them becoming so famous as to find rest eventually in the great museums of the larger cities. The story of the men who made these collections would be excellent material for a Little Journey and it is to be hoped that some one, more familiar with their history than I am, will supply it.

The foremost dealers of the country may be listed as follows:

Ward & Howell, succeeded in 1890 by Ward's Natural Science Establishment at Rochester, N. Y. (now The Frank A. Ward Foundation of Natural Science of the University of Rochester); Dr. A. E. Foote, Philadelphia, Penn.; and Geo. L. English & Co., of Philadelphia, Penn., later of New York City. These three concerns may fairly be called the leaders in the extent of their operations. They issued costly catalogs, which were followed up by frequent bulletins of new arrivals and by correspondence.

Edwin E. Howell of Washington, D. C. ("The Microcosm"), also issued a good catalog but did not push his stock as much as did the others. Geo. B. Frazer of West Bedford, Mass., catered mostly to the schools and students. My relations with Mr. Frazer covered a long period and were pleasant and profitable.

Charles H. Pennypacker of West Chester, Penn., sought for and offered by correspondence the more attractive minerals. Fred. Braun of New York City was a great working collector but not a very good business man. Roy Hopping was for a few years a dealer with a store on Dey Street, New York City. He issued several small catalogs and bulletins. Albert E. Petereit had for a few years a showroom on Fulton Street, New York City, his specialty being gem minerals.

L. W. Stillwell of Deadwood, S. D., was the best known western dealer to collectors of the east because of his catalogs and correspondence. Many dealers in curios located at vantage points at western resorts and dealt in minerals in a small way, notably H. H. Tammen of Denver, Colo.

It would take more space than can be allotted to this subject to give the details of the essentials for a good story of the methods and business of these concerns even as viewed from the outside. We take them up in the order given.

The Ward Establishment was founded

by Henry A. Ward, Professor of Geology in the University of Rochester, who was educated to be a scientist and who was a liberal and discerning collector of material for the several departments of his great institution. He travelled extensively to secure material and made his acquisitions known to private collectors by bulletins.

Dr. A. E. Foote, besides dealing in minerals, dealt largely in books, particularly those relating to scientific subjects. He was esteemed as a great collector and the minerals he obtained from Magnet Cove, Ark., the Bergen Hills and Franklin Furnace of New Jersey, and the early Colorado localities, were sold by him in a large way.

The business of Geo. L. English & Co. was founded in Philadelphia in 1886, and removed to New York in 1891. In New York it had six different locations—the need for space necessitating the moves. The New York business was begun by William Niven with whom Mr. English formed a partnership in 1890. Mr. Niven was an experienced prospector and field worker. The material he won in Mexico and Arizona as to quality and quantity has seldom been surpassed by any collector of his time. His roving character unfitted him for store work. Mr. English took over the business situated on Broadway and moved to 12th Street and so fitted up the stores as to make selections of minerals easier. He put out catalogs that were a delight to collectors. Every speciment put on sale bore a price tab and each had a neatly printed label. His method and taste in regard to these and other details of his business have never been surpassed. He was alert in securing early shipments of new finds in both old and new localities. The golden calcites from Joplin, Mo., by some collectors considered among the finest of all showy minerals, was, perhaps, his greatest "haul." All these features attracted collectors, especially those within easy distance. His period in New York covered the high peak of the mineral collecting fever. Then came a day when the Rochester people made him an offer for his stock and later for his services, both of which he accepted. The Ward Establishment is now owned by the University of Rochester, with the mineral department presided over by Mr. Robert O. Vance—Mr. English serving as Consulting Mineralogist.

Lazard Cahn of Colorado Springs, Colo., made frequent trips to New York City wtih superfine and very rare minerals. His knowledge of crystallography was extensive and so his clientele was found among the more advanced collectors—both at home and abroad.

Charles H. Pennypacker was a lawyer by profession and dealt in menerals because of his love for them, as a recreation and the contact it gave him with the great collectors of his day—among them being Bement, Vaux, Jefferis, Rand, Canfield, Roebling and many others. He was also a willing and f r i e n d l y contributor in characteristic articles to THE MINERAL COLLECTOR.

Fred. Braun had a store on Crosby Street, New York City. He was an active field worker and was often engaged for long periods by amateur collectors to collect geological specimens. He had but little taste for storekeeping and no selling ability. Although an irascible man, he had the sympathy of the collectors who knew him.

L. W. Stillwell's place at Deadwood, S. D., is still doing business.

Before closing this article I anticipate a query likely to occur to the average collector who has read thus far: "Why have so many dealers gone out of business and left no successors?" The answer is a composite of the answers given me by several dealers, both large and small. "Collecting anything may be likened to a fever and as such you get over it sooner or later. Some have mild attacks, some violent ones. For a while some are buyers in a small way, others buy largely, some with a clear purpose in view continue to buy all through life. By far the majority are the first named and not enough buying patients are left to sustain a business of this character."

By the Editor: — The conclusions drawn by the dealers to whom Mr. Bates refers to in his last paragraph may be true. There may have been in the past those who developed a "fever" for collecting and recovered from it but we are more inclined to believe that they gave up collecting because there was no stimulating literature published at the time and because they did not know where to seek information that would be helpful to them in the study of specimens they acquired. It was to meet just this situation that ROCKS AND MINERALS was projected and is being published.

HOW OVERBROOK, PA., WAS PUT ON THE MAP IN 1905

By T. J. Lewis
6707 Lansdowne Avenue Philadelphia, Pa.

Easter Sunday, as was our custom on this day, we went out in search of blossoms for table decorations. As we neared 66th Street and Malvern Avenue, in Overbrook, we noticed that a small hill had been leveled off to build a road across a hollow. A large amount of promising looking quartz was exposed and search revealed a rough odd-shaped crystal; a sort of narrow wedge. As evidence of crystals was all we needed, collecting was postponed until a week day.

The following Friday a trip was made to this newly-found locality. No tools were needed, just a wagon to haul the minerals home. There was quartz and more quartz along the road and on the hill site. Chunks of limpid and smoky crystals — groups and singles — were gathered; and then the digging, which covered many days, was started.

The predominant form of crystal was the "M" terminal with a small development of the unit pyramid but no prismatic faces. The quartz occurred usually in pockets, one of which furnished lustrous ribbed smoky crystals sprinkled with minute transparent ruby rutile crystals; another pocket yielded large rhombohedrons about two inches across and built up of small rhombs. These were odd but not attractive and so were not saved.

Many of the crystals were sprinkled with microscopic transparent ruby rutile crystals, mostly short gemmy little fellows. Some of the rutile crystals showed geniculation and a few showed slender prisms.

A pocket furnished a small lot of doubly terminated quartz crystals and groups from ½ to 2 inches long, of grayish color, a few have asbestos, chlorite, or gothite enclosed. This lot was the common form of quartz; the rare planes were scarce.

Some rough pieces of massive quartz were treated to a bath of silica in solution by Mother Nature and came out with a shining coat of crystals that made them attractive and interesting. Frequently the silica imprisoned minute crystals of dolomite, from colorless to brown, in both singles and groups, making fine micro-mounts.

There are a few specimens I must describe:

No. 1 is a group of three large tapering smoky crystals, the base of which is 8 x 12 inches. The group is 16 inches high with an 8-inch crystal projecting from the side. A small film of new silica encloses dolomite and asbestos. In the original crystallization of the "M" terminal, there is no luster but due to the inflow of new silica the crystals are lustrous and rarely show the line of contact between the new and old quartz; and frequently one face will be left untouched.

No. 2 is a group of prismatic smoky quartz crystals covering a surface 5 x 7 inches. The crystals are so intimately mixed with the colorless tapering crystals on the matrix that you wonder at the two distinct forms on one specimen. This specimen and No. 3 were found close together.

No. 3 is a group of colorless tapering crystals with the common pyramid well developed. This specimen was crystallized all around with doubly terminated crystals on top.

No. 4 is an interesting and showy group of colorless to smoky crystals, 5 x 7 inches in size and having a large tapering crystal penetrating the central group.

No. 5 is a hexagonal cone of smoky crystals, 5 inches long, 2½ inches wide, and tapering to a small pyramid. At one time this crystal was broken into

three pieces but was healed naturally and crystallized at the break.

The Overbrook locality is not without its freaks, one of which is a quartz wedge. On this specimen the terminal planes are perfect. On one side the "M" plane extends 3½ inches, and on the other side 1½ inches below the pyramid. An abnormal development of the lower pyramid starts 2 inches wide and 3¼ inches long, meeting the "M" terminal at a sharp edge. This is a very unusual form.

Only one small crystal showed the combination of the prism, "M" terminal, and the pyramid.

The inclusions are dolomite, marcasite, bronze gothite, rutile, hematite, negative crystals, chlorite balls, asbestos, and minute bubbles.

About twelve years ago I noticed a small pit of sand at this locality which was about two feet in diameter and beside a bed of milky quartz. What the impulse was I never knew but I examined a small quantity under the lens and found some microscopic crystals of rutile in it. Later on I panned this sand and noticed a thin red line at the edge of the water which under the miscroscope proved to be perfect little gems of rutile crystals, doubly terminated with many faces. When mounted on white cardboard these crystals are surprisingly beautiful and attractive; being bright red and transparent.

ROSE QUARTZ

One of the largest deposits of high-grade rose quartz in the country, if not in the world, is located about 8 miles from Custer, S. D., and is owned by Mrs. Edna M. Scott, a valued and enthusiastic member of the Rocks and Minerals Association. The quartz is of a beautiful rose color and is found in large segregations though small scattered masses are also found throughout the district. There are all gradations in color from white through pale pink to deep rose. At the Scott Rose Quartz Mine, the quartz occurs in large irregular masses in pegmatite and it is believed that it represents a late crystallization during the consolidation of the magmatic solution, at temperatures somewhat below the temperatures at which the white quartz crystallized.

Thousands of pounds of rose quartz are mined each year by Mrs. Scott and shipped all over the United States. Germany, China and many other foreign countries are also important users of this mineral. Mineral collectors prize rose quartz highly and are eager to obtain a specimen of it from the Black Hills of South Dakota on account of its beauty to add to their collection.

The best grade of rose quartz is manufactured into jewelry, chiefly for necklaces and settings for rings and pins. Vases, trays, paper weights, and other ornaments are also cut and polished from this grade of rose quartz. The cheaper grades are used for monumental work and as facings for fire places and water fountains. Crushed to small sizes, rose quartz is finding increasing use in pebble-dash finish in stucco construction work.

Two Arizona "rock" pictures will be exhibited at the Art Museum at Antwerp, Belgium. This became known today when it was announced that Henri Rothschild, curator of the museum, who has been in Phoenix attending the fair, had purchased these pictures to take them back with him to hang among the greatest art treasures of the world.

These pictures are made of pulverized rock obtained from the Grand Canyon, Painted Desert and Petrified Forest, and are only made at Joseph City, Ariz., a small town between Holbrook and Winslow.

The pictures selected to hang on the walls of the great Antwerp museum were "painted" by Joseph Smith and his wife, Helen. They are now on display in the mines building at the State Fair.—The Arizona Gazette.

THE $5,00 DOLOMITE—LECTURE ON ITS QUALITIES AND CHARACTERISTICS

By Dr. Eles
The de Clair Laboratories
713 West 8th Street, Los Angeles, California

We are indebted to Dr. Eles for the following resumé of the lecture given under his auspices at The de Clair Laboratories on March 20th.

Have we in this unusual form of dolomite a source of cold-light for which scientists have been searching? The remarkable action upon paint, in which this dolomite is an ingredient, is very surprising. There are undoubtedly other uses to which this unusual mineral may be adapted which the laboratory is not willing to disclose. We await the announcement of further discoveries with much interest.

The reward of $5,000 for the location of the deposit containing the desired dolomite (see Sept., 1928, issue of ROCKS AND MINERALS) is still open. This article was reprinted in many journals and has evoked considerable discussion as to the nature of the dolomite.

—The Editor.

The lecture was opened by a short talk on dolomite, its varieties and uses. Then some demonstrations were made with the much-sought-for DOLOMITE and an electroscope. Most of the visitors present were familiar with electroscopes and found that when the DOLOMITE was bought in contact with an electroscope the electroscope was instantly discharged. The same tests with radium showed that it took an appreciable length of time to discharge the electroscope.

Then the surprising part of the evening was the demonstration of Cold-Light through DOLOMITE. The same charging rod that was used for electrically charging the electroscope was applied to three samples of DOLOMITE in the darkened room and immediately each piece of negative DOLOMITE became intensely self-luminous and glowed brightly with the exception of the impurities (stibnite) which were present in one specimen.

A quarter of a grain of radium was next exhibited and it was found that it had no effect whatever on DOLOMITE nor in the air as far as luminosity was concerned with the exception of its being self-luminous through the destructive action of its atoms. The radium was also examined under the microscope and the disintegration of its atoms was noted. The same tests made with DOLOMITE showed that it gave off a thousand times more light than did the radium and under the microscope did not show any alteration or disintegration of its atoms.

One of the specimens was placed on 24 plates of sheet iron, six by six inches, and the charging rod kept constantly frictionized by means of a silk handkerchief, which shot the particles of static electricity through the plates illuminating the DOLOMITE. One of those present held the iron and DOLOMITE in his hand, and the charging rod being held beneath his hand he felt the static pass through it as it illuminated the DOLOMITE. A glass of water was then used, a piece of DOLOMITE being dropped into it. The static current passed not only through the water and illuminated the DOLOMITE, but it also passed through the glass. A small piece was next placed in the lecturer's mouth when the charging rod illuminating the specimen caused a very pretty sight, the DOLOMITE glowing through the checks and showing plainly the teeth and gums. These tests were all made in the dark.

Before the light was fully turned on, the lecturer stated that he would demonstrate a new paint and from its actions it would be instantly recognized as containing DOLOMITE. He further stated that he had made the properties of this DOLOMITE paint such that they would be self-charged by the electric current either through the charging rod on the crude DOLOMITE itself or from the electrons of the electric light or the electrons of daylight and that it would be possible to soon have a DOLOMITE paint for houses

that would give a passable night light which would make every part of a room visible at no expense other than the first cost of the paint.

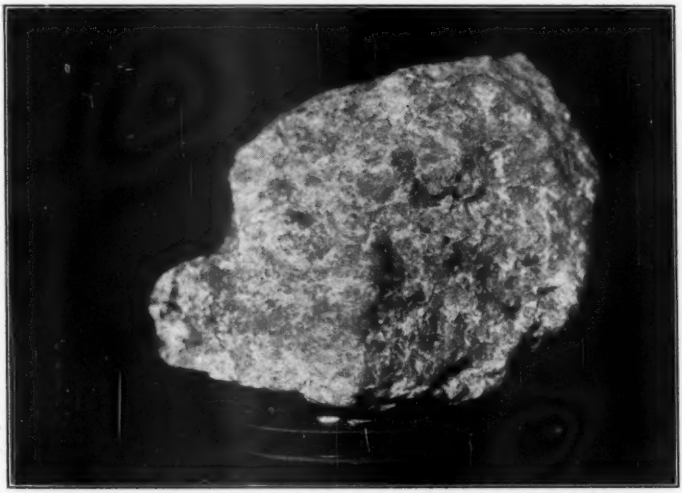
The lecturer then showed a piece of beaver board painted on one side with what appeared to be common dolomite paint, crudely ground and mixed with a sort of varnish. He showed the sheet in the dark by a low artificial light to demonstrate that it had no light or self-luminosity whatever. He then explained that there were on the market Radium paints for clocks, etc., but there was no cold-light in existence today other than that demonstrated by bacteria or by the firefly, yet on his board, which measured 22 x 22 inches, he would produce such a light. He disappeared in the rear of the office with the board and was gone three minutes and, on reappearing, the board was a living mass of cold-light which was instantly recognized as the delicate glow of the DOLOMITE. In coming into the darkened office, the cold-light was strong enough to distinguish faces two feet away from the board and sufficient to dispel the darkness of the room and to make it possible to recognize objects with no other night light.

The light was then turned on and the DOLOMITE paint examined and compared with that of radium paint which is used for painting watches, clocks, etc. All who examined these two paints were agreeably surprised to find that the difference could easily be recognized, as the radium paint showed its atoms to be disintegrating under the microscope, while the DOLOMITE paint was uneffected.

The light given off by the DOLOMITE paint was produced by exciting the paint with a small electric lamp for two minutes. During this short space of time, about four square feet of DOLOMITE paint became one mass of cold-light of such strength that it made objects in the lecture room visible. The DOLOMITE paint was put on the board in a rough manner, showing the streaks of the brush, but every part glower with the cold-light.

On a commercial scale, the lecturer stated, the DOLOMITE would be first ground and then inserted in an electric furnace, where it would be heated, white-hot, for 15 minutes, when its remarkable property of producing cold-light would be brought out. It is interesting to know that once the DOLOMITE was made into a paint it lost its property of discharging an electroscope but gained the property of becoming a mass of cold-light.

In conclusion, the lecturer asked for confidence and good will toward The de Clair Laboratories and further stressed the importance of locating the deposit and giving the first opportunity to share in the discovery of the deposit to The de Clair Laboratories. The reward of $5,000 for the location of the deposit containing the desired DOLOMITE (See Sept., 1928, issue of ROCKS AND MINERALS) is still open.



The Dolomite in its natural state. This piece, 12 ounces, sold for $63.00

A FEW EXCERPTS FROM LETTERS RECEIVED FROM MEMBERS WHO ATTENDED THE LECTURE.—Editor

Among those in the audience present at the lecture were twelve members of the Rocks and Minerals Association. The following have been kind enough to send in some comments and we are printing a few excerpts from their letters. Interested readers may write them for further information if desired.

On March 20th, members of the Rocks and Minerals Association residing in Los Angeles, were invited by The de Clair Laboratories to attend a lecture and demonstrations on a dolomite which contained some remarkable properties. Those who attended were indeed fortunate. The lecturer said, when he had the lights turned off for demonstration, that it reminded one of the old spiritualist's meetings. We certainly saw spirits as DOLOMITE and radium must surely be the spirits of the mineral world. We were all privileged to handle and examine the specimens of DOLOMITE and the tube of radium and to hold them during demonstrations. Space will not permit me to tell all we saw and learned. All present were enthusiastic over the DOLOMITE and I am sure we all want to go out prospecting for it. I must say that had I not been a member of the Rocks and Minerals Association I would have missed a wonderful lecture and demonstration on this most remarkable DOLOMITE.

(Signed) Jos. H. KRAUS,
118-S. Almont Drive,
Los Angeles, Calif.

I attended the lecture at the de Clair Laboratories and found it very interesting indeed, and must say that this special DOLOMITE is a WONDERFUL MINERAL, if it can be found in large quantities. If a commercial deposit of this can be located there will be a VERY LARGE DEMAND FOR THE MINERAL and instead of an ordinary NON-METALLIC it will be known as a RARE MINERAL and will command a high price and will be used in a great many industries throughout the world. The paint made from it is wonderful and I believe it will excell RADIUM.

(Signed) WM. J. AUW,
1952 Galbreth Road,
Pasadena, Calif.

Through ROCKS and MINERALS, I have had the privilege of attending a very interesting lecture and demonstration on the sensitiveness of static electricity in a remarkable dolomite and a comparison of this mineral with radium. I have had years of experience in the Pre-Cambrian formations, prospecting and mining, and am interested in the common ores as well as in radioactive ores. It is my opinion that the de Clair Laboratories have made a wonderful discovery that will be of great benefit to science as well as a development into an important commercial product.

(Signed) ROY M. MOWRY,
2852 Florence Ave.,
Huntington Park, Calif.

When I received the invitation to attend the lecture and demonstration at the de Clair Laboratories, I was agreeably surprised and very delighted to take advantage of it. In order that I might get the most out of the lecture, I had with me two of my friends, Mr. F. T. Richards, Jr., Electrician and Radio Man, who is the Manager of our West Coast Radio Laboratories and Mr. Henry Sharpeggee, Manager of the optical works connected with our Petrographic Laboratory. The lecture and demonstrations were keenly interesting and were enjoyed by all. My conclusions are: This particular mineral is a dolomite of remarkable properties. It is very sensitive to static electricity. It will be of great value to man in the future. As soon as we are able to supply the de Clair Laboratories with a deposit of this dolomite we shall hear some startling stories about this mineral.

(Signed) D. PETCOFF, *Manager*
Southwestern Petrographic
Laboratory
965 East 10th Street,
Los Angeles, Calif.

HOW THE STATES RANK IN MINERAL PRODUCTION

Pennsylvania's great coal production was the principal factor in giving the Keystone State rank as the leading mineral producing state in 1927, says the Department of Commerce.

The following table shows the principal mineral products of each state ranked in order of value.

MINERAL PRODUCTION OF THE DIFFERENT STATES, 1927

State	*Principal Mineral Products*	*Amount*
Pennsylvania	Coal, cement, clay products, natural gas	$937,123,000
Oklahoma	Petroleum, natural gas, zinc	524,595,000
California	Petroleum, natural gas, cement	459,638,000
Texas	Petroleum, natural gas, sulphur	374,503,000
West Virginia	Coal, natural gas, petroleum, clay products	366,643,000
Ohio	Clay products, coal, natural gas, stone	226,731,000
Illinois	Coal, clay products, petroleum, cement	180,288,000
Kentucky	Coal, petroleum, clay products, natural gas	152,614,000
Michigan	Iron ore, copper, cement, sand and gravel	124,030,000
Kansas	Petroleum, zinc, natural gas, cement	120,369,000
New York	Clay products, stone, cement, gypsum	111,580,000
Indiana	Coal, stone, cement, clay products	107,578,000
Minnsota	Iron ore, stone, cement, clay products	102,973,000
Arizona	Coal, gold, silver, lead	100,559,000
Utah	Copper, lead, coal, silver	90,368,000
Alabama	Coal, iron ore, cement, clay products	78,641,000
Missouri	Lead, clay products, cement, coal	75,890,000
New Jersey	Clay products, zinc, cement, stone	73,058,000
Montana	Copper, zinc, petroleum, coal	67,833,000
Arkansas	Petroleum, coal, natural gas	59,449,000
Colorado	Coal, gold, zinc, lead	58,855,000
Wyoming	Petroleum, coal, natural gas	56,167,000
Louisiana	Petroleum, natural gas, salt	51,267,000
Virginia	Coal, cement, clay products, stone	41,320,000
Tennessee	Coal, cement, stone, clay products	37,875,000
Iowa	Coal, cement, gypsum, clay products	33,426,000
Idaho	Lead, silver, zinc, stone	29,184,000
New Mexico	Copper, coal, zinc, petroleum	28,609,000
Nevada	Copper, gold, silver, gypsum	26,753,000
Washington	Coal, cement, clay products, sand and gravel	21,966,000
Wisconsin	Stone, zinc, sand and gravel, iron ore	21,777,000
Maryland	Coal, clay products, cement, sand and gravel	20,469,000
Florida	Phosphate rock, stone, fuller's earth, sand and gravel	18,096,000
Georgia	Stone, clay products, cement, fuller's earth	16,756,000
Massachusetts	Stone, clay products, sand and gravel, lime	16,295,000
Vermont	Stone, slate, lime, talc	14,703,000
Alaska	Copper, gold, coal, silver	14,402,000
North Carolina	Stone, clay products, sand and gravel, copper	11,652,000
South Dakota	Gold, cement, stone, sand and gravel	8,455,000
Connecticut	Stone, clay products, lime, sand and gravel	7,299,000
Oregon	Cement, stone, sand and gravel, clay products	6,821,000
Maine	Stone, lime, clay products, slate	5,476,000
South Carolina	Stone, clay products, sand and gravel, barite	4,251,000
Nebraska	Sand and gravel, cement, clay products, stone	3,542,000
New Hampshire	Stone, clay products, sand and gravel, feldspar	3,447,000
North Dakota	Coal, sand and gravel, clay products	2,870,000
Mississippi	Sand and gravel, clay products, natural gas, stone	2,554,000
District of Columbia	Sand and gravel, clay products, sand-lime brick, stone	1,375,000
Rhode Island	Stone, sand and gravel, clay products, lime	1,311,000
Delaware	Clay products, stone, sand and gravel	493,000

A COMPILATION OF GEM NAMES

By GILBERT HART

P. O. Box 2005, Birmingham, Ala.

Mr. Hart and ROCKS AND MINERALS will be glad to have readers send in additional gem stone names not here included or suggestions as to any corrections in names which they believe should be made.

This is a continuation of the very interesting compilation of gem names (the largest ever printed) made by Mr. Hart, the first installment of which appeared in the December, 1927, issue of the magazine. This list will be continued until completed.—The Editor.

Hagstone—flint.

Hair Stone—quartz, sagenite.

Haplome—garnet.

Harlequin—opal, see next below.

Harlequin Opal—opal, colors form mosaic or are in small squares.

Hatchet Stone—nephrite.

Hauynite—isometric, usually in rounded grains, various shades of blue, hardness 6, specific gravity 2.45 complex silicate with sulphate.

Hawk Eye—quartz, with inclusions of fine parallel blue fibres of crocidolite, chatoyant.

Hedge-hog Stone—quartz, sagenitic, with goethite needles.

Heliodor—beryl, golden yellow by day light, delicate blue-green by artifical light, contains uranium and is weakly radioactive.

Heliolite—feldspar, sunstone.

Heliotrope—quartz, bloodstone.

Hematite—hexagonal, massive or tabular, red to gray, hardness 5.5 to 6.5, specific gravity 5.2, iron sesquioxide, names for ornamental varieties: **Bloodstone, Iron Glance, Iron Rose, Specular Iron Ore, Specularite.**

Hemimorphite—English name for calamine. The English and American usage is different for the zinc minerals thus: carbonate is smithsoniate in America calamine in England; silicate is calamine in America and either hemimorphite or smithsonite in England.

Hercules Stone—magnetite.

Hercynite—Member of spinel group, isometric, usually massive, black to dark green, hardness 7.5 to 8, specific gravity 3.9, double oxide of iron and aluminum.

Herkimer Diamond—quartz, rock crystal from Herkimer Co., N. Y.

Hessonite—grossularite.

Hetaerolite—brilliant black radiated mixture of zinc and manganese oxides.

Hiddenite—spodumene, green.

Hollow Spar—andalusite.

Holy (or Holey) Stone—quartz, flint

Horatio Diamond—quartz, rock crystal from Arkansas.

Hornblende—member of the amphibole group of silicates, monoclinic, massive, green, hardness 5 to 6, specific gravity 3.25, silicate of calcium, sodium and magnesium.

Hornstone—quartz, flint-like but more brittle.

Hot Springs Diamond—quartz, rock crystal from Hot Springs, Ark.

Howdenite—andalusite, chiastolite with fern-like markings.

Humboldtite—datolite from Rhenish Bavaria, Germany.

Hungarian Cat's Eye—quartz cat's eye.

Huntilite—an uncertain arsenide found with the copper ores of Lake Michigan.

Hyacinth—zircon, red, (2) essonite, or any other light colored garnet, (3) spinel, yellow red (4) red iron-stained quartz. Zircon is the true hyacinth, others are so-called from color resemblance.

Hyacinth of Compostella—quartz, with red hematite inclusions.
Hyacinthozontes—beryl, sapphire-blue.
Hyaline—corundum, pale blue to bluish white.
Hyaline Quarts—quartz, bluish and opalescent because of included chalcedony.
Hyalite—opal, clear and colorless.
Hyalosiderite—olivene.
Hydrolite—quartz, with liquid inclusions and often a bubble of gas.
Hydrophane—opal, which become transparent or fiery only when immersed in water.
Hypersthene—member of the pyroxene group of silicates, green to black, hardness 5 to 6, specific gravity 3.45, silicate of iron and magnesium, also called **Paulite.**
Ice Spar—orthoclase, sanidine, white and transparent.
Iceland Agate—obsidian.
Iceland Agate Lava—obsidian, which yields the Iceland Agate.
Iceland Spar—calcite, clear crystals.
Ichthyohthalmite — apophyllite—whitish pearly aspect, see fish eye stone.
Idocrase—vesuvianite.
Ilmenite—hexagonal, usually massive, black and opaque, hardness 5.5 to 6, specific gravity 4.7, double oxide of iron and titanium, also called **Menaccanite.**
Ilvaite—orthorhombic, prisms, black, hardness 5.5 to 6, specific gravity 4.05, hydrous silicate of iron and calcium, also called **Yenite.**
Image Stone—agalmatolite.
Imperial Yu Stone—quartz, green aventurine.
Inca Stone—pyrite.
Indian Agate—moss agate.
Indianite—anorthite, gray to reddish.
Indian Topaz—topaz, saffron-yellow, (2) quartz, yellow.
Indicolite—tourmaline, blue.
Indigolite—tourmaline, blue.
Iolanthite — quartz, jasper from Crooked River, Oregon.
Iolite—cordierite.
Iridescent Quartz—quartz, rock crystal filled with fine cracks containing air films which reflect colors of the rainbow.
Iridosmine—native alloy of iridium and osmium, rare metals of the platinum group, mounted as found in nuggets to a limited extent in Tasmania.
Iris—iridescent Quartz, also applied to other iridescent minerals.
Irish Diamond—quartz, rock crystal from Ireland.
Iron Glance—hematite, especially the grey lustrous varieties.
Iron Rose—hematite, flat tabular crystals in rosettes.
Isle of Wight Diamond—quartz, rock crystal from Isle of Wight, Eng.
Isle Royal Greenstone—chlorastralite.
Isopyre—opal, very impure.
Italian Chrysolite—vesuvianite.
Iztac Chalchihuitl—aragonite, white to green.
Jacinth—zircon, yellow, (2) essonite, yellow.
Jade—true jade is either jadeite or nephrite, the term is applied more or less promiscuously to any hard and tough green or greenish white compact rock or mineral; included are pectolite, vesuvianite garnet, bowenite, serpentine, plasma, prehnite, agalmatolite, sillimanite, saussurite.
Jadeite—member of pyroxene group, monoclinic, massive, green of varied shades, hardness 7, specific gravity 3.33, silicate of aluminum and sodium, also termed **Chloromelanite.**
Jager—diamond, originally to a stone from Jagersfontein Mine, but now applied to blue-white stones.
Jargon—zircon, white to grayish white. (2) applied to inferior yellowish diamond from Ceylon.
Jargoon—zircon.
Jasp-agate—intermediate between jasper and chalcedony with predominant opaque Jasper.
Jasper—quartz, massive, very fine grained and often fibrous, impure, opaque.
Jasper Opal—opal, deeply colored by many inclusions.
Jasperine—jasper, banded and varicolored.
Jasperized Wood—wood petrified by jasper.
Jasponyx—onyx, part or all of which is jasper rather than chalcedony.
Jaspopal—opal, colored yellow by iron oxides.
Jellettite—andradite, green.
Jet—coal, pitch-black, hard enough to take a brilliant polish.
Jet Stone—Tourmaline, black.
Job's Tears—hyalosiderite, rich olive-green variety of olivene.

A REVIEW OF MINERAL COLLECTING DURING 1928

When ROCKS AND MINERALS began publication with its first issue on September 1, 1926, the collecting of minerals which, at one time had been the fascinating pastime or pursuit of many, seemed to have fallen into a state of "innocuous desuetude". Possible this was due, in part at least, to the fact that no literature was available for the young collector outside of published price lists and catalogs of mineral dealers. During the past few years and more particularly during the past year, a new interest seems to have been created and once more mineral collecting and study is becoming deservedly popular. We wish we might claim the credit for this but while ROCKS AND MINERALS may have had something to do with it, the general trend towards nature study may also had its part.

In order that we might look over the general field and make certain that mineral collecting was on the increase, we have sent out numerous letters to dealers, museums, collectors and others, who might have means of knowing, asking them to give us a brief review of mineral collecting as they saw it reflected in their own business or in their own fields. We are printing herewith some of the replies which we are very sure will interest those who are members of the Rocks and Minerals Association and many others into whose hands this issue of ROCKS AND MINERALS may come.

Mr. Albert C. Bates in his "Little Journeys To Old Mineral Shops", that appears in this issue, refers to the great interest in mineral collecting in the past, an interest which waned but which apparently is reawakening. From the reviews we print below it will be apparent that not only is the collecting of minerals among the young and old increasing but dealers are enlarging their stock forseeing a great demand and while not stated in the review itself, many new dealers are springing up and are offering new supplies. —THE EDITOR.

DEALERS IN MINERALS

Mrs. Edna M. Scott
Box 44, Custer, S. D.

I wish to say that in my 25 years of dealing in Black Hills rose quartz and minerals in general I never have advertised in any magazine that has helped us as much as ROCKS AND MINERALS. In 1928 our business more than tripled.

The Gem Shop
Box R37, Wolf Creek, Mont.

We are glad to advise that business was good during 1928 and that we had most satisfactory results from our advertisements in ROCKS AND MINERALS. We believe that mineral collecting is on the increase and we are preparing to meet this situation by increasing our stock with many choice minerals and gems. We also believe that it is up to the collectors and dealers to support ROCKS AND MINERALS so that this excellent magazine may continue to come out. After all, the check we enclose for increased advertising space in this issue is probably the best expression we can make of our attitude toward ROCKS AND MINERALS.

John A. Grenzig
299 Adams St., Brooklyn, N. Y.

Our sales were mostly to local collectors and judging from the many purchases they have made they must find our stock interesting and prices reasonable. There is such a keen demand for attractive crystallized specimens that we cannot supply all our customers. We had six importations from Europe alone and the specimens sold readily in no time at all. We know that mineral collecting is on the increase and that ROCKS AND MINERALS must have a wide circulation as we receive letters (in answer to our advertisements) from all parts of the U. S. and many foreign countries as well.

Evans W. Buskett
Box R1005, Joplin, Mo.

1928 was our most successful year and we believe 1929 will be even better. Our advertisements in ROCKS AND MINERALS brought us in more orders than all the other publications combined which we advertised in. We find that there is a keen demand for choice minerals of this district.

H. G. Clinton
Manhattan, Nevada.

I believe that 1926 was a more successful year for me than 1928, nevertheless there was a keen demand for choice minerals from this locality. The U. S. collectors bought chiefly of orpiment and realgar. We also had considerable orders from dealers abroad; the London dealers preferred orpiment and realgar, the Paris dealers demanded rare minerals, while the German and Italian dealers wanted silver minerals.

E. W. Birch, The Stone Man
P. O. Box 34, Salem, Oregon.

1928 was our best year and our orders came chiefly from advanced collectors. Our specialties are agates and opals which we buy rough and cut and polish them to meet the needs of collectors, although we also try to stock up with all kinds of gems and gemmy minerals. Our best seller are the agates which are collected from beaches throughout the State; these are polished and make attractive cabinet specimens. Opals we import direct from Australia. We also import cut gems from Mexico.

S. & M. Mineral Supply House
R. F. D. No. 3, Box 284,
Riverside, Calif.

We found business very good during 1928 and especially during the fall and winter months. We are very agreeably surprised at the large number of letters from collectors in this vicinity who wrote us in answer to our advertisements in ROCKS AND MINERALS. We never knew there were so many collectors in this part of the country and feel that our advertisements have more than paid for themselves.

We have nine departments in our establishment of which mineralogy is Dept. A and gems and cut stones is Dept. C. The remaining seven departments are devoted to other branches foreign to minerals.

Edwin Over, Jr.
2528 Pine St., Pueblo, Colo.

I only deal in minerals intermittently and especially at such times when I can obtain a nice stock of choice local minerals. 1928 was my best year, both for collecting and selling, and I am confident 1929 will surpass this. ROCKS AND MINERALS certainly deserves credit for reawakening a new interest in minerals.

Wilbur J. Elwell
38 W. Wooster St., Danbury, Conn.

Our sales during 1928 were the heaviest in our history. We had so many calls for our minerals that we were forced to stop advertising as we could not meet the demand wanted. We believe 1929 will easily outstrip 1928 and we are preparing for it.

Ward's Natural Science Establishment, Inc.
Box 24, Beechwood Sta.,
Rochester, N. Y.

The entire stock of which is now owned by the University of Rochester, is by far the largest house dealing in minerals. Its business is operated purely in the interest of science and education and without profit. Since its foundation in 1862 it has specialized in minerals, though handling all kinds of natural history materials. It is steadily forging ahead in popular favor as is proved by the fact that its sales were six times those of 1913.

Within six weeks after the announcement of the transfer of business to the University on September 1st, 1927, arrangements were completed for its consulting mineralogist, George Letchworth English, to start on a year's collecting expedition around the world. The greater part of this trip was made during 1928 and led to the addition to Ward's stock of over $100,000's worth of choice minerals, gems, rocks and meteorites. These additions were so many that it is possible to enumerate only a very few.

From Africa. There were hundreds of choice diamond crystals worth from $1 to $1500 each; a splendid series of the rocks of the diamond mines; many splendid specimens of the varieties of Asbestus peculiar to Africa such as Amosite and Crocidolite; crystals of Sperrylite, loose and in the rock; the new copper mineral Cornetite, etc., etc., etc.

From Australia: Several new meteorites were obtained; many thousands of dollars worth of Precious Opals; hundreds of good loose crystals of Cassiterite; loose crystals of Gold and Molybdenite; etc., etc.

Many minerals were also obtained from various parts of the world as Greenland, Iceland, Madagascar, India, Russian Turkestan, Japan, China, New Zealand, Brazil, Uruguay, Bolivia, Chile, Mexico, Canada, Europe and from all over the United States.

Geo. H. Richards & Co.
48 Sydney St., Chelsea, London, S. W. 3, England

During 1928 we stocked up heavily with choice minerals from many mining centers of the world, particularly the British Isles, South America, South Africa and Spain. We were also fortunate in acquiring many collections including some old-time "treasures" so that we can now offer collectors a wide choice of desirable minerals. Our specialties are minerals from the metalliferous mines of Cornwall and other mining centers of the British Isles. Our customers include the juvenile to the most advanced collectors as well as high schools, colleges, universities and museums.

The Clinton Lapidary
C. L. Clinton, Mgr.
712 South Ave.,
Westfield, N. J.

We wish to acknowledge our appreciation of ROCKS AND MINERALS and the good work it is doing. Although we started in business late in the year we found results most encouraging.

Ralph W. Tuthill
110 Earl Road, Michigan City, Ind.

From the dealer's standpoint, 1928 was a very successful year for us, both in volume of sales and in the number of new customers secured, many of the latter being beginners. We believe mineral collecting is on the increase—due in no small measure to the interest stimulated by ROCKS AND MINERALS. Everything indicates that the coming year will be more interesting for the collector and successful for the dealer.

Peter Zodac
Peekskill, N. Y.

We wish to report an increased number of sales, especially among the younger collectors, and our total sales for 1928 were the highest in our history. We have received many orders for study collections as well as for specimens desired for cabinet display. In this we see, not only a growing interest but a clientele, which later, will desire the best specimens obtainable for a permanent collection. We do not think that the selling of minerals has ever had a brighter outlook than it has at the present time.

MISCELLANEOUS DEALERS

John Wiley & Sons, Inc.
Publishers of Technical and Scientific Books,
440 Fourth Ave., New York, N. Y.

With the natural increase in interest of a great number of people in minerals has come a corresponding interest in books pertaining to all phases of the subject. Publishers are in receipt constantly of inquiries asking for specific data on a wide variety of topics concerning origins, sources, characteristics, uses, etc., of various types of minerals found in all parts of the country. To the collector interested in identification a book such as Dr. G. M. Butler's "A Pocket Handbook of Minerals" is an exceedingly useful volume. Those who prefer a more formal treatment of minerals will find perhaps more suitable the well-known Dana's "Manual of Mineralogy." This book has been a guide for several generations of mineralogists and is now in its 13th edition. To the collector desirous of intensive study there is, of course, the famous Dana's "System of Mineralogy," which was first published in 1837 and has since gone through numerous revisions. This is the "Bible" of the Mineralogist and is the generally recognized arbiter of technical disputes. There are many other useful and interesting books that should be on the shelves of every mineralogist who is keenly interested in minerals and desires to know more about them.

Christopher Look
1432 So. Oak Ave., Freeport, Ill.

Our sales of books during 1928 were most encouraging. We had a large number of calls for books on gems and precious stones, minerals, etc., and our small advertisements in ROCKS AND MINERALS brought us in contact with many collectors who had books for sale or wished to purchase some. We believe there is a wide field for ROCKS AND MINERALS and we are wishing it all the success in the world.

E. P. Bottley

27, Portland St., Derby, England.

1928 was a period of intense development for our business and we had to leave our mineral department alone to keep pace with orders after orders for our rock-sections, a large number of which came from the United States.

We are preparing to expand our business and perhaps secure larger quarters to accommodate our growing business. At present we have a keen demand for rock-sections and are in urgent need for typical rocks. We would appreciate hearing from any collector who can supply such rocks.

Southwestern Petrographic Laboratory

965 East 10th St., Los Angeles, Calif.

1928 has been an unusually important year for our business. It seems that the mining industry is getting benefitted tremendously by the application of petrografical and metallurgical microscopes in studying the rocks and ores at their mines. The demand for thin sections and polished specimens indicates that real science is actually being applied for the identification and determination of rock-forming minerals.

We have had quite a demand for microscopic rock sections from mining schools, universities and geologists. The ease with which a mineral can be identified with a petrographic microscope no doubt will supplant other methods. At the present we use several methods for the determination of minerals under the microscope.

The demand for quartz crystal plates as prisms and lenses induced us to expand our business and we are now prepared to furnish quartz plates also. Many of the radio broadcasting stations use these quartz plates which act as a governor to radio frequencies.

Mosaic Rock Picture Studio

Joseph City, Ariz.

A few years ago the idea of making pictures from rocks and minerals was conceived by Helen M. Smith and Joe E. Smith of Joseph City, Ariz., and they instantly became popular. These pictures are made from pulverized rocks and minerals which are obtained from the Grand Canyon, Petrified Forest, Painted Desert, mines and other localities in Arizona. The minerals so used are ground and screened to uniform sizes (all dust being removed) and then laid in a special cement. Beautiful and naturalistic pictures are thus produced similar in effect to oil paintings, but *only* rocks and minerals are used. Sometimes frames are made of rocks by a similar process. Today these pictures are hanging among the greatest art treasures of the world.

Another branch of our business is designing and laying out rock gardens in which rocks and minerals are used to represent various scenes, etc. We have forwarded an article on Rock Gardens to ROCKS AND MINERALS so as to give readers of this magazine an idea what our work is like. This article will appear in a future issue of the magazine.

We are pleased to say that 1928 was our most successful year and from the orders we have on hand now, 1929 is going to be even better.

Rocks and Minerals

Peekskill, N. Y.

ROCKS AND MINERALS, desiring to take its place in this review, wishes to add its word of encouragement to those that have gone before. Our venture was a new one in field where other publications had failed but we believed that a magazine dealing upon mineralogical and allied subjects, if written by those competent to handle them and in a language as free from technical terms as possible, would stimulate an interest in the collection of minerals. In this we have not been disappointed.

Our magazine now has a wide circulation in the United States as well as in foreign countries and we feel that our subscribers are those who are not only interested in the magazine but are interested in the magazine because of their interest in the subjects in which it treats. The increase in subscriptions in 1928 certainly manifested that a renewed and a real interest was again being taken in mineralogy.

MUSEUMS

Mineralogical Museum, Harvard University, Cambridge, Mass.
Dr. Charles Palache, Curator

Notes on Two Remarkable Minerals Acquired by the Museum During 1928

Of the minerals secured by the Museum during 1928 the most remarkable is the group of gypsum crystals which has already been illustrated in several publications. The present picture has not, however, been reproduced. It shows the group cased, as it stands in the middle of the Museum. Regarding this group, the following notes may be of interest:

The group stood in a cave 800 feet underground in the mine of the Peñoles Company at Naica, Mexico. Permission having been secured to remove it, Dr. Foshag of the U. S. National Museum and Mr. Berman of our Museum proceeded upon the undertaking. The group was cut with an ordinary cross-cut timber saw into about 10 pieces, the largest of which weighed over 200 pounds. These were separately wrapped in burlap and with the utmost difficulty carried up ladders, through drifts, and finally to the surface, slung from the bottom of the hoist, and there they were packed in straw and shavings in large cases and ultimately reached the Museum in excellent condition. The group weighed approximately 1100 pounds. After temporarily setting up to determine the dimensions of the case needed, a box was erected on the Museum floor, the crystals were again set up in position, being held in place by a temporary scaffold and cement was then poured about their bases. With one exception they are held by the cement alone. The longest crystal is about 5 feet in length, they are largely transparent and each is perfectly terminated although the surfaces are not brilliant. The group as a whole stands high above everything else in the Museum and makes a supberb center feature.

It is not difficult after looking at the group to understand why the native miners called it the "Maguey" or Century Plant. Grouped about it on the base of the case are clusters of smaller crystals of gypsum from the walls of the cave in which this group stood out preeminent by reason of its large size.

Next in interest to this group of minerals among the additions of the year was a supberb topaz crystal from Brazil. It is a terminated crystal, approximately 13 inches high and so clear that the label as shown in the illustration can be read through the whole length of its pellucid substance. It is colorless except for the faint yellow tone given by the stain upon its surface.

Fig. 1

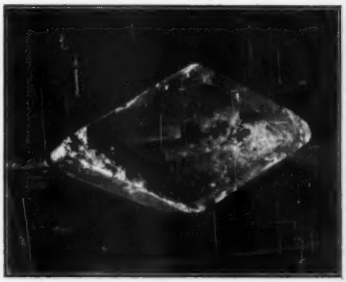
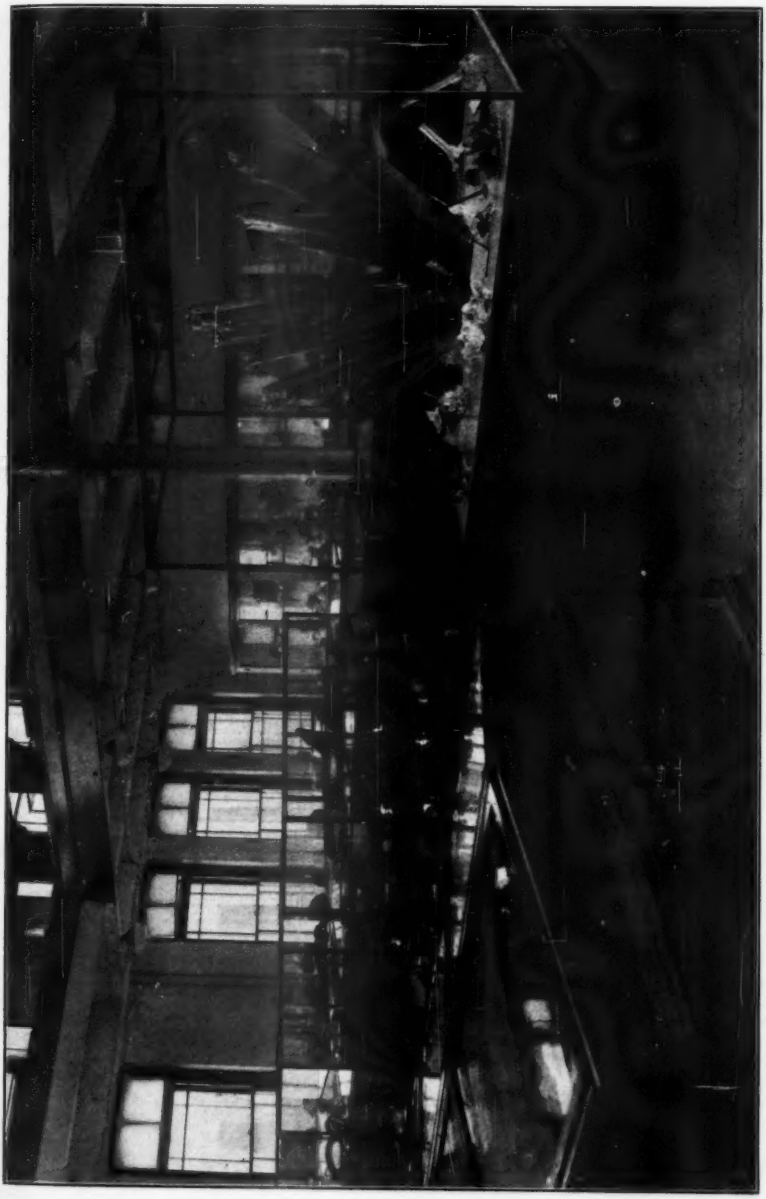


Fig. 2

Two illustrations of the superb Topaz Crystal from Brazil. It is 13 inches high and so clear that the label as shown (Fig. 2) can be read through the whole length of its pellucid substance. Fig. 1 is an elevation and Fig. 2 is a cross section of the crystal.



A CORNER OF THE MUSEUM SHOWING THE REMARKABLE GROUP OF GYPSUM CRYSTALS FROM NAICA, MEXICO.

Notes on Minerals of Special Interest Acquired by Field Museum of Natural History, Chicago, Ill. During 1928.

The mineral collection of Field Museum of Natural History was augmented during 1928 by many interesting specimens and a large total number was received. They include the following:

The mineral collection of the late Chas. M. Higginson of Chicago, for many years assistant to the President of the C. B. & Q. Railroad, was presented to the Museum by Mrs. Higginson. The collection numbered 3240 specimens, representing more than 400 species and varieties. Mr. Higginson was a student under the elder Agassiz and was inspired by that enthusiastic naturalist to an interest in minerals which continued throughout his life time. Having been gathered during a long period, the collection contains specimens from many localities now exhausted. As is well known, minerals from these older localities some times had names differing from those now in use and specimens from these localities serve to illustrate these varieties and occurrences. Such names, for example as: pistacite, jacksonite, goshenite, nacrite, roseite, renssaelerite, montebrasite and hebronite are little used nowadays, but they represent steps in the progress of mineralogy which have historic interest. These and many other authentic varieties are well represented in the collection. The collection is especially rich in specimens from old New England localities. Other fine series are those of tourmalines from Pierrepont, N. Y., pyroxenes from New York and micas and hydro-micas.

The opportunity was improved through the generosity of Mr. William J. Chalmers to acquire many of the excellent specimens obtained by Mr. English on his recent tour. These include African dioptase and cerussite and some of the remarkable crystals of pyrrhotite and realgar from Roumania.

A beautiful carving of rose quartz in the form of a bowl, 18 inches in diameter and 6 inches in height, was presented by Mr. Richard T. Crane, Jr. This is probably the finest large piece of lapidary work ever executed in this mineral. The walls of the bowl are less than one-half inch in thickness. The ornamental qualities of California vesuvianite, also know as "California Jade" are also represented in a dish carved by an American Lapidist. This was also presented by Mr. Crane, Jr.

A cut iolite of unusual color and size from Madagascar, presented by Dr. Ralph Linton, was another desirable acquisition.

Of the interesting minerals described by Dr. Shannon, from the Spokane Washington eruptives, a fine series, collected by Mr. C. O. Fernquist, was acquired by exchange from the Eastern Washington Public Museum.

Four new meteorites were added to the collection, the largest of which was an iron meteorite from Gladstone, Queensland, Australia. This weighs 1400 pounds.

The Commercial Museum

34th Street below Spruce Street, Philadelphia, Penn.
Charles B. Toothaker, Curator.

The Philadelphia Commercial Museum does not make a collection of mineral specimens, as this term is usually understood. On the other hand, we do display a very large collection of ores and economic minerals from almost all parts of the world.

The aim of the mineral exhibits is not to show things because they are rare nor because they are beautiful but because they are useful. More than in any other Museum, these collections show the processes of industry connected with these mineral substances. This display is worked out by specimens of the substance in various stages of its progress from raw material to finished product and by models of such things as mines, furnaces, etc.

The Museum serves business men throughout the world and is frequently in touch with persons wanting to dispose of economic minerals in large quantities and with firms desiring to obtain them.

A Visit to the Mineral-Producing Regions of New England

By George P. Merrill,
Head Curator, Department of Geology,
U. S. National Museum.

To inspect certain of the well-known mineral regions of New England with a view to future explorations, rather than to acquiring new materials, I made a somewhat hurried trip through parts of Maine, New Hampshire, and Vermont.

Leaving the Isle of Springs. where I had been passing a few weeks' vacation, I proceeded by train and auto to Andover, Maine, where under the guidance of Mr. W. D. Nevel I was able to study the pegmatite deposit in the adjoining town of Newry. This proved to be a typical case of feldspathic replacement as made known through the research of Doctor Schaller, and was of particular interest not only because of its green and pink tourmalines, lepidolite, and large amblygonites, but also because it is the only deposit worked for the rare mineral pollucite, a silicate of caesium and aluminum, which was at one time considered to be of promise as a source of caesium salts for use in the manufacture of radio apparatus. From Andover I proceeded to the well-known and historically interesting gem locality at Paris Hill in the same State. Mining operations were quiet so that opportunity was offered only of examining a large series from former workings, including one of the finest green tourmalines known, which had already been sold to Harvard University. From Paris Hill I proceeded to an inspection of certain localities in New Hampshire, making my headquarters at Canaan with side trips to the desired points. Old workings in Grafton and Acworth were visited which were noted in the past as producers of gigantic beryls. Both localities proved of exceptional interest, but it was not deemed advisable to attempt under existing conditions the extraction of any of the crystals, owing to their inaccessibility and the consequent cost. From Canaan, I went to Bellows Falls, Vermont, and through the courtesy of the officials of the Board of Trade was enabled to visit several of their feldspar prospects. The mines, though producing feldspar and quartz in commercial quantities, were singularly barren of other desirable minerals.—(Reprinted from "Explorations and Feld Work of the Smithsonian Institute in 1928.")

PUBLIC MUSÈUM

2316 First Street, Spokane, Wash.

C. O. Fernquist, Curator of Mineralogy.

During the year 1928 my mineral collecting was not as extensive as I had planned it to be. Even at that, I collected a few minerals from the basalts of the Columbia Plateau lava flows here in Spokane. I also visited some mining districts in Stevens, Pend Oreille, Ferry and Okanogan Counties in this State and procured a few fine minerals.

Here in the northwest, mineral collectors are very scarce and it is difficult to make arrangements with men interested in the mining industry to help build up our museum collection. The only minerals they usually think of are the commercial ores, the crystallized minerals being entirely ignored as of no value. I have found that to build up the collection at our museum it is necessary for me to go out personally and do my own collecting.

I have noticed that there has been more interest taken in the mineral collection at our museum during 1928 than ever before and the interest is growing continually. A number of visitors come regularly, including some boys, who seem keenly interested in minerals. At all times I try to assist the boys by taking them through the museum and pointing out all the interesting minerals that are on exhibition.

Besides minerals, I have collected a large number of fossil flora of the Latah Formation of Miocene Age here in Spokane. This is a very interesting locality for fossil plants and at the present time we know that there were over 150 varieties of trees and shrubs besides several insects during the time of the lava flows of the Columbia Plateau. This flora has been described in U. S. Geoligical Survey Prof. Paper 140A by F. H. Knowlton.

Notes on Paterson Minerals

By James F. Morton, Curator,
Paterson Museum, Paterson, N. J.

The two quarries, at West Paterson and Prospect Park, respectively, continued to be productive during 1928. As an illustration, on the annual Election Day visit of the New York Mineralogical Club to the two quarries, no less than twenty species were collected by the different members.

The Barite vein at Prospect Park, which suddenly appeared about three years ago, came to its end before the opening of the season of 1928; but by way of compensation, new showings of fine Stilbite, Prehnite, Hematite in Calcite and in Quartz, Amethyst, Datolite and other minerals have been plentiful, with interesting appearances of various copper minerals in small amounts.

At West Paterson, the usual variety has been in evidence. A great quantity of the Hyalite variety of Opal, with a very little Cacholong, was available at the opening of the season, but was eventually exhausted. An interesting and hitherto unknown mixture of rather fine-grained Apophyllite and Aragonite came out freely toward the end of the season. This was often associated with Analcite, which was unusually abundant. The splendid Prehnites. for which this quarry is famous, was as richly evident as ever. There was abundance of excellent Pectolite, Datolite, Laumontite and Calcite, with some Natrolite, Thomsonite, Thaumasite and various other less common appearances.

As is known to many, the Paterson Museum has undertaken to specialize in the New Jersey minerals to a degree that no other museum has ever done. Its collection of Paterson minerals, including nearly fifty species, with endless varieties, is the most complete in range to be found and is rapidly becoming enriched by the choicest types. It is also strong in the minerals of Franklin, N. J., having nearly a hundred species, with many varieties and a number of extremely choice specimens. The Paterson and Franklin minerals are rendered available for special study by being exhibited, each by itself, in a number of cases in which no other minerals appear. There is also an added case devoted exclusively to types of New Jersey minerals from other than these two most notable localities.

Members of the Rocks and Minerals Association are cordially invited to visit the Paterson Museum and to introduce themselves to the Curator. The Museum is also in a position to arrange exchanges of Paterson, Franklin and other minerals for desired species and types from other localities.

Additions to the Mineral Collections of the American Museum of Natural History

New York, N. Y.

During recent years the activities of the Mineral Department have been concentrated in bringing the collection nearer the ideal of a complete series of the minerals of the world. As opportunity offers, gaps in the series representing rare missing species have been filled. During 1928 the following species have been added:

Afwillite, Anemousite, Aramayoite, Avogadrite, Bäckströmite, Baldaufite, Berthonite, Bravoite (Mechernichite), Duftite, Fizelyite, Fluoborite, Frierinite, Hillebrandite, Kleinite, Kolovratite, Kreuzbergite, Loparite, Linosite, Mallardite, Mackintoshite, Mellosevichite, Mirwinite, Montroydite, Quenselite, Ramsayite, Rinneite, Spurrite, Sulphoborite, Surassite, Vonsenite, Weinschenkite, Wenzelite, Weslienite.

The collection is now between 80% and 85% complete taking into account all new species, and disregarding discredited species and varities.

G. P. PUTNAM'S SONS
Publishers and Booksellers
2 West 45th Street, New York, N. Y.

We publish three books dealing with minerals which are as follows: "Rocks and Minerals," by Looms; "Textbook of Precious Stones," by Wade; and "The Book of Precious Stones," by Wodiska. All three have shown an increase in sales for the year 1928 over 1927—and have sold steadily ever since they were published.

PROMINENT COLLECTORS

Mineralogy Being Revived

By
Dr. Henry C. Dake, President
Rocks and Minerals Association.

It has been gratifying to the mineralogical fraternity to note the new interest shown in minerals during the past year. Dealers in minerals, both large and small, report the past year as having been one of the best in their histories. While no large number of new spectacular finds have been made recently, yet the dealers now have good stocks in many of the species and purchasers can obtain most of the minerals in good specimen quality at a very reasonable figure. A rather large number of new dealers have also cast their hats into the ring during the past year.

In the research field, a considerable volume of work has been done in the investigation of the rarer minerals and metals, particularly in the search for new sources of the rare metals. Some very excellent articles have appeared in the mineralogical magazines and rather more than the usual number of texts and new works. The circulation of mineralogical magazines is increasing at a slow but steady and healthy rate. Publishers of books on mineralogy and allied subjects report better than the average number of sales. The government bureaus also have made many important contributions to the science.

Collectors of minerals and students of mineralogy generally report a progressive year. Many new and excellent finds have been made by collectors in the field the past year and as a result much new material has found its way into private collections throughout the country. It seems safe to say that more exchanging has been done than ever before and as a result most collectors are increasing the number of species and specimens in their cabinets at a gratifying rate. And last but not least, the younger people are taking a new interest in minerals, due largely to the efforts of publications circulating amongst the younger generation.

Hundreds of public schools throughout the country have in recent years introduced the study of minerals into their curriculum.

And lest we forget, the head of our nation, President Hoover, while not a mineral collector, is keenly interested in mineralogy since he is a mining engineer by profession. It has been predicted that many of the large industries of our nation, especially those using metals, will in the next few years, undergo a huge expansion. It is therefore obvious to even the casual observer that the study of minerals will be attacked with renewed vigor.

Charles W. Hoadley,
Vice-President, Rocks and Minerals Association.

I was interested to hear of your proposed review concerning the work which has been done during the past year in field by the various prominent mineral collectors in the United States. I hardly know whether I would qualify under this category as I have made very few expeditions. Recently, however, I made a visit to a number of abandoned limonite mines in the Township of Salisbury, Conn., with the purpose of securing the exceedingly rare species *rhabdofenite* (scovillite). This mineral only occurs in this country at the Scoville mine located three and one-half miles north of the village of Salisbury near the Massachusetts and New York State line. It is a phosphate of yttrium and cerium, etc., and found as a pink incrustation on limonite—needless to say I was not successful in finding any.

Another trip was to Portland, Conn., at which well-known locality the usual pegmatite minerals are to be found. On the occasion of my last visit there was considerable spodumene and lepidolite coming out. Of course there is always an opportunity to collect fine albite crystals, beryls and tourmalines from the dumps, and an occasional specimen of lithiophilite, apatite, etc.

Paterson, N. J., was visited by the writer during the autumn of 1928 and the usual zeolites and associated minerals were collected from the "lower quarry", such as pectolite, datolite, prehnite, etc.

Morrell G. Biernbaum, B. S., C. E.,
Past President,
Rocks and Minerals Association.
Member
Philadelphia Mineralogical Society.

In spite of the fact that many of the famous old collecting grounds have seemingly passed out of existence, we find that the interest in collecting remains so strongly rooted that ways and means have been devised to enable the enthusiast to continue his hobby.

Probably the greatest feature of this situation is the tremendous revisiting of these so-called extinct localities in search of specimens having microscopic-mount possibilities. There has rarely, if ever been an excursion organized heretofor purely in search of micro-material, and yet, the Philadelphia Mineralogical Society has on record several such trips during the past year and in every instance were quite successful. The Society has, for the past several years, devoted one meeting each year for the study and exhibit of micro-mounts, using several binocular microscopes and tables at these meetings. These meetings have been the most interesting and each was largely attended. It is the writer's desire to emphasize, as much as possible, the fact that this new revival of interest in micro-mounts does away, to a large extent, with the former cry that the good old days of collecting are gone. It is always possible, of course, to collect real hand-size specimens today, although it may require traveling greater distances than heretofor to localities somewhat remote from metropolitan districts. The Philadelphia Mineralogical Society records of extremely successful trips to Canada, New England, Middle West and South America, of the past few years, attest to this fact. But the "Acres of Diamonds" of present day mineralogy is right at your door in the form of micro collecting and is practically virgin and limitless.

The Jewelers' Circular,
239 West 39th St., New York, N. Y.
By T. Edgar Willson, Editor.

The call for color, the development of special costume jewelry and a better and keener interest in and appreciation of precious stones generally, has gradually created a public interest in many of the less known but equally beautiful gem stones that have been used in jewelry at various times in the days gone by. This is causing many progressive jewelers to seek information on the lessor known gems and minerals to a greater extent than we have noticed at any time in the last twenty or thiry years. Inquiries that have come to THE JEWELERS' CIRCULAR have shown that a knowledge of all gems and gem minerals is a real requirement of the progressive jeweler today. Unfortunately, some of the older text books while prolific in the information about such stones as diamonds, rubies, sapphires, emeralds and pearls and some of the cheaper stones, such as amethyst, quartz, turquoise, topaz, opal, etc., did not go into the history and characteristics of many varieties of gems and gem materials that are today the subject of thought and study by the jeweler. A recent example of this is the zircon, about the blue variety of which there has been considerable interest in the past year.

Outside of Bauer's great work "Precious Stones", there has been little published on the details and characteristics of the many varieties of spinel, chrysoberyl, beryl, agate and other groups that contain gems about which the public and jeweler wish to learn much, and for this reason, we feel that publications like ROCKS AND MINERALS, which will give such information on the lesser known gem materials is performing a worthy contribution to the literature of gems that should be heartily encouraged. We have already had occasion to recommend your publication to a number of enterprising jewelers who are seeking to develop their technical education on the mineralogical side, and sincerely trust that your magazine will continue to publish as much or more information of value to the gem and jewelry trade in the future than it has in the past. We are sure that as time goes on, it will prove of more and more value to the gem collector, the lapidary and jeweler as well as to the collector of minerals.

QUARTZ AND CHALCEDONY

By P. WALTHER
508 Muriel Parkway, Elizabeth, N. J.

Three main ways are in nature for the generation of the minerals which form the quartz group.

First we have the oldest, the pyrogenetic way, with which are included the quartz granules in *Plutonic rocks* as gneiss, granite, etc.

Second we have crystallization out of *watery solutions.* These solutions may contain alkaline carbonates, carbon dioxide, sulphur dioxide, fluoric acid, etc. They all have a more or less intensive dissolving power on siliceous rocks.

Third we have the action of the carbonic acid on the rocks which dissolves out the alkaline silicates and other bases, leaving the silica free. The bases, as lime, magnesia, iron, manganese, etc., are washed away as soluble carbonates or bicarbonates, and the silicon oxide crystallizes out. This is the main way in which quartz forms as it is present everywhere. If the evaporation of the solvent is a *very slow one,* quartz crystallizes out; but if the evaporation is *more rapid,* or if certain conditions are present whereby the water becomes absorbed, the silicon oxide takes the more cryptocrystalline form of *chalcedony.*

There are many varieties of the quartz group:

1. The *quartz crystals* proper, which in some cases are white, due to minute cavities which often are filled with water or carbonic acid. The real show pieces are either colorless and clear as *Rock Crystal;* or yellow, as *Citrine;* brownish as *Smoky Quartz,* or *Cairngorm;* nearly black as *Morion;* or purple as *Amethyst.*

Rock Crystal is found sometimes in enormous specimens. From Madagascar is reported a crystal of over 15 feet in circumference. At Grafton, N. H., a column of 6½ feet long and 1½ feet in diameter was found—the weight of this single crystal being 2,913 pounds.

Why the color in quartz varies as in Citrine, Cairngorm, Amethyst, etc., is up to the present not quite settled. For Amethyst, some authors claimed manganese, which others could not find. Certain it is that a pale amethyst gets a deeper color if exposed for some time to radium rays; further an amethyst which has been discolored artificially takes up its original color again if exposed to radium or Rontjen rays. The same is the case with cairngorm. Citrine, if exposed to radium rays, turns brown; if it had not been discolored before, brown-black. Even ordinary clear rock crystal turns brown if subjected to radium rays. So it is very probable that with the exception of amethyst the colored varieties of rock crystal owe their colors to the action of radium rays.

Besides the crystallized clear varieties of quartz we have a number of vitreous varieties whose color is due to inclusions, as:

Ferruginous Quartz (*Eisenkiesel*): As yellow or red opaque crystals. The color is due to hydrous or anhydrous iron oxide.

Sapphire Quartz: Stained by enclosed fibrous Crocidolite.

Sagenitic Quartz: The color is due to acicular crystals of Rutile, Black Tourmaline, Gothite, Stibnite, Asbestus, Actinolite, Epidote, Hornblende, etc.

Cat's Eye: Opalescent, due to Asbestus.

Tiger Eye-Griqualandite: Is altered Crocidolite by the oxidation of the iron and infiltration of silica.

Aventurine: Is a quartz staned by scales of mica, hematite, gothite, etc.

Other varieties show a difference in form or structure, as:

Capped Quartz: Which is made up of separable layers or caps due to the deposit of a little clayey matter in the progress of the crystal.

If the matter is only in minute quantities the layers are not separable and we have the so-called *Ghost Crystals,* which in some cases are of a different composition than the covering quartz matter.

Fibrous Quartz: Probably a pseudomorph after Crocidolite.

Cellular Quartz: Consisting of thin quartz walls left after the washing out of the original mineral on which the quartz had been deposited. In many cases that mineral was Barite.

In mines, one finds quartz crystals everywhere in connection with the ore veins or pockets and it is a curious fact that the biggest crystals from mines have always been found in Tungsten mines. Very probably (and experiments in the laboratory point to the same) the tungstic acid acts on the silicon dioxide as a mineralizing agent. The finest artificial quartz crystals have been made by G. Specia at the Royal Academy of Turin, Italy. He dissolved quartz powder at 160° to 180° C. in a solution which contained 12.7 Na_2SiO_3. Then he heated the solution up to about 340° C. The experiment took about 5 months and he obtained 2 crystals which were perfectly clear and so much like the natural double ended ones, that only the thin silver wire on which they had grown proves their artificial origin. The size of the larger crystal is over 1 cm.

In spite of the high insolubility of quartz one finds it very often in places where the action of heat can not have found place. A. Brunlechner has tried to explain the genesis of quartz with barites and iron ores and he comes to the following conclusions: Water impregnated with carbonic acid dissolves barium silicate out of the surrounding rocks, forming a solution of bicarbonate of barium and of silica which would of course crystallize out. The barium bicarbonate is changed by decomposing iron pyrites into barium sulphate and carbonate of iron, etc.

This was probably the case for the genesis of a column of quartz which I saw some years ago in Cumberland, England. The column, about 5 inches high by 3 inches in diameter, was smooth and round. Its outside color was blackish—looking like charcoal. The white quartz had grown inwards filling the column up to small spaces in the center. The outside appearance struck me as rather curious and I was informed that the specimen was part of a longer column which had come out of a rotten wooden water-pipe found in an old iron ore mine after the re-opening up of that mine.

There are many pseudomorphs of quartz after Zeolites, Calcite, Corundum, Beryl, Rock Salt and metal oxides and sulphides. On the other hand quartz is often changed itself into other minerals as Calcite, Hematite, etc., but mostly Steatitic minerals. In these cases the action must have been due to alkaline silicate or alkaline carbonate solutions.

The second variety of quartz, the crypto-crystalline *Chalcedony*, is found in different colors due to various mineral admixtures, as:

Carnelian: Whose red color is due to iron oxide.

Chrysoprase: Whose apple-green color is due to nickel compounds.

Prase: Whose leek-green color is due to Aitinolite.

Plasma: Whose bright to leek-green color is due to Celadonite.

Heliotrope (*Bloodstone*): Which is a plasma enclosing veins or globules of Carnelian.

The variety mostly used for small art products is the *Agate*. This mineral is found filling out cavities in Melaphyre-Basalt, etc. The main constituent of the agate is the ordinary, nearly colorless or pale grayish chalcedony, banded by carnelian or sometimes some opaline matter. After the cavity is not quite filled up and then one finds inside of it crystals of Quartz (Rock Crystals, Amethyst, etc.), and Zeolites, Calcite, etc.

The origin of the chalcedony is colloidal silicious acid, a gelatinous silica solution generated by the action of superheated steam in the bubbles of the still-hot magma, dissolving the surrounding rock and on cooling filling out the cavities in the rock and later on by dehydration forming Opal, Cacholong, Chalcedony, and lastly Quartz. The deposition of agate did not find place in one single filling up of the cavity by the silicate solution only, but often there penetrated more and more of that colloidal solution into the cavities forming more and more chalcedony, until the whole cavity was either filled up or there was no further new additional material, when it was finally dehydrated and formed a more or less rounded mass of agate, the shape of which was an exact copy of the original cavity. That is quite natural because the first lot of silica solution which penetrated into the cavity was dehydrated by the surrounding rock first and so deposited on the walls of the cavity. In many cases and at certain localities almond or pear shaped agates are covered on the outside with Celadonite. This was the first mineral formed in the vapor-filled cavities of the

volcanic rock. Sometimes the Celadonite not only covers the agates but penetrates them, moss-like, far into the interior. We have then the *Moss Agate.*

Attempt has been made to explain the beautiful coloring of the agates and those thousands of more or less concentric rings or lines which we discover under the microscope. Some authors thought the infiltration of the gelatinous silica solution had been periodical. Another author's theory was that after precipitation of the silica, the remaining water had been pressed out through the channels one sees in the agate by new infiltration of colloidal solution. R. Liesegang explains the different bands in the agates by DIFFUSION OF THE SILICA GEL with other mineral solutions which had either a dehydrating or coloring influence on the Gel. To prove his theory, he put a lump of 10% Gelatine Jelly, which contained a small percentage of potassium chromate, in a solution of 20 parts silver nitrate in 80 parts water. The silver nitrate penetrates into the gelatine, where at first it remains in solution as potassium-silver-nitrate. This is then in the METASTABLE state of OVER - CONCENTRATED solutions. But if that concentration is continued, the metastable state turns into the STABLE state and silver chromate is formed and precipitated. Some of the metastable solution, which had penetrated further inwards, is attracted backwards by the forming silver chromate leaving near that ring a space free of the silver salt. New quantities of silver nitrate in forming continually now pass through the saturated part of the gelatine and are attracted by the metastable potassium nitrate a little SPACE AWAY from the first formed ring, changing there the metastable solution into the stable state, and so on forming one layer of silver chromate after the other, with always a space of colorless gelatine between.

With the agates, there may have been infiltrated a solution of iron salts and precipitated by reducing agents or iron had been in solution in the gelatinous silica and got precipitated by reducing agents introduced from without. If there is any separation it must go to the introduced reducing agents, viz., centrifugal, and that explains why agates in the center are nearly always colorless. By this infiltration theory is explained besides, why different rings in an agate have a different form of crystallization resp. dehydration. Chalcedony, being a porous mineral, can frequently be stained easily by chemical action.

Most of the Onyx plates one buys have been treated with a sugar solution and then sulphuric acid. Red banded agate is produced by immersion of the cut and polished pieces in ferric chloride solution and then heating. The Green Chrysoprase is made artificially by immersion in chrome alum and heating. The Yellow Agates are produced by boiling in hydrochloric acid and then heating. The Elue Agates (which do not exist in nature but are often sold by mineral dealers as Siberian, etc.) are made by immersion in potassium ferri-cyanate sulphate.

The porosity of chalcedony is proved further by the Enhydros, which after a long time lose their water and gain it back after immersion for a few weeks in fresh water.

The most common variety of chalcedony is Flint. This mineral is absolutely amorphous and has mostly a dull, grayish up to black color—the color is due to organical carbonaceus matter. The body of the flint consists to a great extent of Diatoms, which are remains of sponges, etc.; and in the chalk formations, flint often fills out the fossil shells of Echinites, etc. The many shaped forms of the flint, as one often finds them in the chalk deposits, have been due to the contraction of the drying up silica gel in the chalcedony after the bottom of the chalk sea had been elevated above the level of the water.

The third way is the action of the micro-organisms. Diatoms, etc., absorb silica out of the water or liberate it even out of the silicious rocks and deposit it again as shells for their bodies. So have formed the beautiful silica skeletons of which one finds sketches in many geological textbooks; and so have originated the large deposits of Tripolite (Kieselguhr) which are still found in many districts all over the world.

THE SLUICE BOX

By A. RIFFLE

"Old Bill" has lived here for 35 years. He has a vast store of information about every prospect in the district and about every prospector who ever lived here and their individual peculiarities. And if you don't think some of those "old timers" had their peculiarities then you never lived in a western mining district.

"Old Bill" and I were coming down a fork of the Creek one day, some years ago, when I noticed two prospect holes about 20 feet apart and at the foot of a perpendicular, blank wall of diorite about 200 feet high. I said to "Old Bill": "What was the idea in starting two tunnels so close together?" "Old Bill" grinned, looked around, found a quartzite boulder to his liking, sat down and told me this one.

Years ago an old fellow by the name of Jim Flower was prospecting this gulch. "Old Bill" described him as "Jest a little crazier than an insane loon." It seems that a spirit came to him in a dream one night and urged him to start tunneling at this point. This spirit visited Jim in his dreams about twice a week and each time gave him instructions about the work and frequently changing the direction of the tunnel and of course promising him a discovery of great treasure if the directions were followed up. Jim finally became so obsessed with this spirit's advice that he hired a man to help him. One day, after several months of work, Jim was single-jacking and the helper was putting in a timer when with a blow of the hammer the drill slipped through Jim's hand and disappeared through the hole. Jim could see a faint gleam of light through the hole and immediately decided that this was the "pot of gold" that the spirit had promised him. In feverish activity he put in the balance of the round of holes, loaded them and spit the fuses. The helper, being of a more practical turn of mind, had suspecteed the facts and when they got outside the tunnel he made Jim go with him to the shelter of a large rock. When the shots exploded there was a new opening in the diorite wall. Jim had tunneled 250 feet in a circle and came out about 20 feet from where he went in, all of it in barren country rock without even a stringer to encourage him. If you don't believe this one come out here and we will show it to you.

I was just looking over my file of ROCKS AND MINERALS. Soon I will have enough copies for one binding and a most interesting volume it will be. A little co-operation on the part of all of us will assure that there will be several more volumes for binding in the future. You will be doing more or less motoring and visiting mineral localities in the search for specimens this summer. Put a copy of ROCKS AND MINERALS in your pocket and when you meet some one interested in minerals show him your copy and ask him to subscribe. I know that a couple of hundred new subscriptions will be a great encouragement to the editor. Let's get them for him!

"Old Bill" is a person of considerable interest to those tourists who chance to meet him. As he has a well of good water near his kitchen door, quite a few of the travelers who go over there for a drink stop to talk with him. I was sitting in the kitchen looking at the paper one day when a lady of apparent wealth and social standing engaged him in conversation outside the door. "And do you do all your cooking?" asked the lady. "Sure," replied "Old Bill." "Been doing it for fifty years." "But you don't bake pastry and such things?" insisted the visitor. "Pastry?" said "Old Bill." "Say, lady, I kin bake a pie in fifteen minutes that two men can't eat in a week."

WITH OUR CONTRIBUTORS

T. J. Lewis of Philadelphia, Pa., tells of some remarkable finds of quartz crystals at Overbrook in 1905. We are quite sure that many of our readers will envy Mr. Lewis the delightful experience he had in making this discovery and undoubtedly many of us would like to have some of the specimens he describes. As he tells it it must have been a delightful experience. We hope that Mr. Lewis will be able to give us accounts of some of the other remarkable finds which were made around Philadelphia around 1905.

Another new contributor to this issue is Eugene W. Blank of Pennsylvania State College. Mr. Blank favors us with an interesting article on American diamonds. We are very sure that aside from mineral collectors few people, if any, realize that diamonds are found in the United States, so this article should be of considerable interest to those of our readers who are not actually mineral collectors.

Mr. Blank has forwarded us two additional articles which we shall hope to use in an early issue of ROCKS AND MINERALS.

PUBLICATIONS RECENTLY RECEIVED

"ALLUVIAL PROSPECTING," by C. Raeborn and Henry B. Milner. Thos. Murby and Co., London.

This book covers the ground of placer prospecting in an unusually thorough manner. Much of the theoretical material of the first chapters is applied geology, but applied in such a way that the geologist wonders at his under emphasis of many features and the practical prospector realizes the underlying principles of his rule of thumb methods. It contains valuable lists of field and laboratory equipment for the prospector, although the microscopic equipment is hardly to be considered a prospector's tool. The closing pages contain detailed descriptions of most alluvial minerals, with particular emphasis on the characters of alluvial specimens. Among these are many gem minerals, with important determinative data. A study of its pages will give even the amateur collector ideas for locating his specimens which are usually gained only through long prospecting experience. G. H.

U. S. CIVIL SERVICE OPPORTUNITIES

For those who are interested we are pleased to announce the following open competitive examination to be held in the near future by the U. S. Civil Service Commission:

Associate Curator, $3,200 a Year.

Applications for the above examination must be on file with the Commission at Washington, D. C., not later than June 26.

The examination is to fill a vacancy in the National Museum, Smithsonian Institution, Washington, D. C., and vacancies occurring in positions requiring similar qualifications.

Full information may be obtained from the U. S. Civil Service Commission, Washington, D. C.

EDITORIAL

It is most gratifying to the Editor of this magazine when he finds in the letters of inquiry a self-addressed stamped envelope or at least a stamp to cover the postage of the answer he expects to receive back by mail. One postage stamp is not an expensive article in these days, but when multiplied by at least two figures it amounts to quite a little in the course of a week. We wish to take this opportunity to thank those who have had the courtesy to send us stamps. More specially do we thank those who have forwarded with their letters self-addressed stamped envelopes.

It is most encouraging to the Editorial Staff of ROCKS AND MINERALS to receive so many letters from advertisers informing us of responses to their advertisements, not only from all parts of the United States, but also from many foreign countries. One advertiser stated that he had sold more minerals through his advertisement in ROCKS AND MINERALS than he had through his combined advertisements in other journals and periodicals. Another advertiser tells us he was forced to stop advertising in ROCKS AND MINERALS because he couldn't meet the demand for his minerals—so great was the response to his previous advertisements. Still another dealer says that the best way to show his appreciation for the results obtained from his advertisements in ROCKS AND MINERALS is to enclose check for DOUBLE ADVERTISING SPACE in this issue. Just as we were about to go to press another advertiser wrote us, saying: "I am simply surprised at the letters coming in in answer to our advertisements and especially from collectors living in our vicinity. We never knew of them until they wrote."

ROCKS AND MINERALS has a very widespread circulation among people who are interested in mineralogy. That is perhaps the reason why our advertisers have had such gratifying responses to their advertisements in the magazine.

Several letters have come to the Editorial desk regarding the formation of local mineral clubs in the localities of the writers. We are very glad to encourage any such a movement anywhere and to be as helpful as it may be possible for us to be. We would suggest that in seeking to form a local club it might be well to insert in the local newspapers a notice to those who might be interested to meet at some particular place for the purpose of considering the formation of a club which would be helpful and stimulating to those interested in the collection and study of mineral specimens. If only a few respond, there is at least a nucleus for the formation of a club which may grow into an important organization in the community. We shall be very glad to furnish those desirous of organizing with a list of Rocks and Minerals Association members in their immediate vicinity. Of course we would appreciate it if the members of the club would make ROCKS AND MINERALS their official publication and become subscribers for it. This would give the members of the local club membership also in the larger association of Rocks and Minerals.

One of our members have forwarded us a suggestion that we open up a Localities Information Department to which department members could write requesting information pertaining to particular localities. The idea is to have a number of active collectors in various sections of the country volunteer to give information regarding the localities in their districts to any member of the Rocks and Minerals Association who may write them.

Collectors secured for this department shall be listed in ROCKS and MINERALS with their addresses so that members can write to them direct. We hope that in the September issue we may have the pleasure of opening up this department. Who will be the first to volunteer?

THE ROCKS AND MINERALS ASSOCIATION
PEEKSKILL, N. Y., U. S. A.

Organized to stimulate public interest in geology and mineralogy and to endeavor to have courses in these subjects introduced in the curricula of the public school systems; to revive a general interest in minerals and mineral collecting; to instruct beginners as to how a collection can be made and cared for; to keep an accurate and permanent record of all mineral localities and minerals found there and to print same for distribution; to encourage the search for new minerals that have not as yet been discovered; and the endeavor to secure the practical conservation of mineral localities and unusual rock formations.

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If you are not a member of the *Rocks and Minerals Association* you are invited to join.

It is our desire to enroll all mineral collectors and those interested in minerals and their study so that our purposes may be realized and the fascinating study of

minerals be increased. Dues are $1 per year in the United States and Possessions ($1.25 foreign), which includes subscription to ROCKS AND MINERALS. Dues are payable on the 1st day of January. Those joining during the year will be entitled to the full year of ROCKS AND MINERALS. Those whose subscriptions expire during the coming year, if they wish to become members of the Association, should pay for the unexpired portion of this year plus the dues for 1929.

Membership Nomination Blank

Annual Dues U. S. and Possessions, $1 Foreign, $1.25

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Secretary,
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Peekskill, N. Y., U. S. A.

Dear Sir:

I nominate for subscribing membership in the *Rocks and Minerals Association* and to receive ROCKS AND MINERALS:

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Name .....

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Name .....

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(Ninety per cent of the annual dues is designated for subscription to the magazine.)

Let us all pull together and bring proper recognition to the Association.

THE PRESIDENT'S PAGE

Planning Your Summer Vacation

By Dr. Henry C. Dake

The season is now at hand when the mineral collector will make plans for the summer vacation and the writer suggests that the time be spent in the field collecting minerals. It is indeed fortunate that we can enjoy our avocation out of doors as well as by the fireside. In planning a vacation in the field it is urged that the collector first read all the literature available on the localities to be visited in order to be better prepared to recognize, and be on the lookout for, the minerals to be found there. Practically all the early mining districts have been examined by the U. S. Geological Survey and by the State Bureaus of Mining and excellent printed descriptions are usually available from these sources. Remember that good minerals can always be exchanged, therefore take nothing but specimen material. The poor specimens and fragments are worthless and usually received with disappointment when sent as exchanged material.

In the west there are many old mining camps which can be visited and as a rule good specimen material can be obtained by "noodling" the dumps, as termed in Australia. A small army trench shovel is ideal for this purpose and can be readily carried in the auto. The writer has obtained excellent specimens from the dumps of old mines which have not been in operation for some fifty years and the material was not visibly affected by this protracted period of weathering and exposure. In noodling an old dump from a precious metal mine, be on the alert for material containing "values." In the early days of mining it was often not profitable to handle ore less valuable than $50 or $100 to the ton, and as a result, miners were frequently careless about what went to the dumps. At some of the early mining camps there are yet large dumps of good "milling" ore awaiting construction of proper transportation facilities without which it would not prove profitable to move them.

The writer on one occasion examined a large slab of ore which had been used as a corner foundation for a small mine building and upon breaking the rock found the inside heavily peppered with pyrargyrite. Apparently the first piece of suitably shaped material at hand was pressed into service at the time.

In the west there are a number of nearly deserted early mining camps which are locally known as "ghost" towns and are extremely interesting. For a unique experience try driving into a town with buildings and hotels for about 5,000 people and after a lengthy search of the old buildings, perhaps "unearth" a few old timers still waiting with confidence for the camp to come back. Truly the question comes to one's mind: "Where is everybody?" The collector can usually spend several profitable days at one of these old camps inspecting the mines, the old mills and searching for specimens in the dumps nearby. At western localities one can usually obtain specimens without the use of the silver pick but there are times when the "pick" will secure an unusual specimen. It might here be said that the western miners in common with most miners often have an exaggerated idea as to the real value of an unusual or even common mineral. Keep this in mind when making an opening offer.

Mining districts also offer excellent opportunities for first-hand observations in geology, as the geology of a mining region is covered quite thoroughly in the printed descriptions. As is well known, the geology of a region is of prime importance to the proper and economical operation of a mine. All the states in the Rocky Mountains region, and to the west, offer excellent localities where the collector may spend a happy vacation and securing duplicate material for exchanging. Most of the mining districts can be reached by auto which is by far the best means of travel.

The Classified Ad Section of ROCKS and MINERALS

Rate 5 cents per word. Three insertions for the price of two. No ad accepted under ten words. Remittance must accompany copy in all cases. Closing dates are: 20th of January, April, July and October. We reserve the right to reject all questionable advertisements.

This section of ROCKS AND MINERALS is producing such excellent results for many of our advertisers that we desire to call the attention of all our readers who may wish to buy, sell or exchange minerals, ores, gems, books, and other material. For best results, an ad should run for at least three insertions. Let our readers get acquainted with you.

BOOKS & PERIODICALS

DANA'S MINERALS AND HOW TO Study Them. $2. Postage 15 cents extra. The most popular book on minerals for beginners. "Rocks and Minerals," Peekskill, N. Y.

WANTED—BOOKS ON GEMS, DICHroscope, Gem Scale. The Gem Shop, Box R37, Wolf Creek, Mont.

EXCHANGES

WILL EXCHANGE PEGMATITE MINerals and associated minerals from Maine for gem minerals. Charles F. Marble, Ridlonville, Maine.

WILL EXCHANGE SPECIMENS OF Pipestone and Calc Tufa. Joseph N. Prokes, R. 5, Jackson, Minn.

GEMS

FACETED GEMS: AMETHYSTS, AQUAmarines, Garnets, Peridots, Citrines (Golden Quartz), Rhodolites and others. CABOCHON GEMS: Agates, Amazonites, Amethysts, Aventurines, Azurites, Azurmalachites, Beach Pebbles, Bloodstones, Carnelians and others. Send stamp for lists. Shelley W. Denton, Wellesley, Mass.

CALIFORNIA GEM MINERALS FOR Sale. Albert Everitt, Escondido, Calif.

ALL KINDS OF CABINET SPECIMENS —Agate, Opal and other Gem Minerals from 20c up. Everything in cut-polished stones—Moss Agates, Opals, Zircons, Turquoise, Bloodstones, Rubies, Sapphires, and others. Will send stones on approval. Do cutting and mounting. E. W. Birch, The Stone Man, Box 34, Salem, Oregon.

SEMI-GEM MINERALS. WE HAVE A supply of semi-gem material that we are offering at very reasonable prices. Malachite, Agates, Cerussite, Dumortierite and many others. Send for price list. S. & M. Mineral Supply House, R. F. D. No. 3, Box 284, Riverside, Calif.

METEORITES

METEORITES WANTED FROM ANY locality. Will purchase entire falls or exchange duplicates with collectors. Bennet C. Wheeler, Pylesville, Md.

MINERALS

FRIENDS, THERE ARE GOOD MINeral Specimens for sale at John A. Grenzig, 299 Adams St., near Borough Hall, Brooklyn, N. Y.

FOR SALE—Set of 16 luminiscent minerals in special box—$5. Order Now! E. M. Gunnell, 595 E. Losey Street, Galesburg, Illinois.

I WILL SELL OR EXCHANGE CELESTite, Molybdenite, etc., for other showy minerals. Correspondence invited. William Parrish, 2567 Amber St., Philadelphia, Pa.

DENDRITIC OPAL—BEAUTIFUL, showy specimens — green-reddish, brown-white with pink-variegated colorful opalescent, 50c to $1.50 Obsidian (Volcanic Glass), 50c to $1.50. Will also exchange for crystals, gem stones, fossils, Indian relics, minerals. Earl Standard, Brown, Kern County, California.

FRIENDS! DON'T FORGET TO CALL on JOHN A. GRENZIG, 299 ADAMS ST., BROOKLYN, N. Y. There will be NEW SPECIMENS in stock by the time YOU see this notice.

P.S.—Saw your Ad in ROCKS AND MINERALS.